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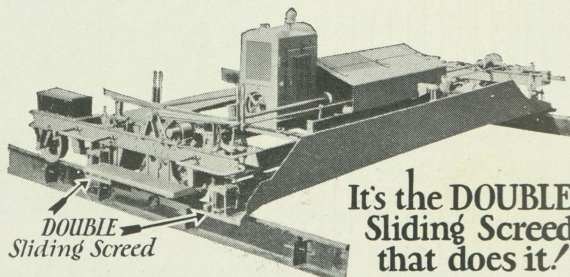
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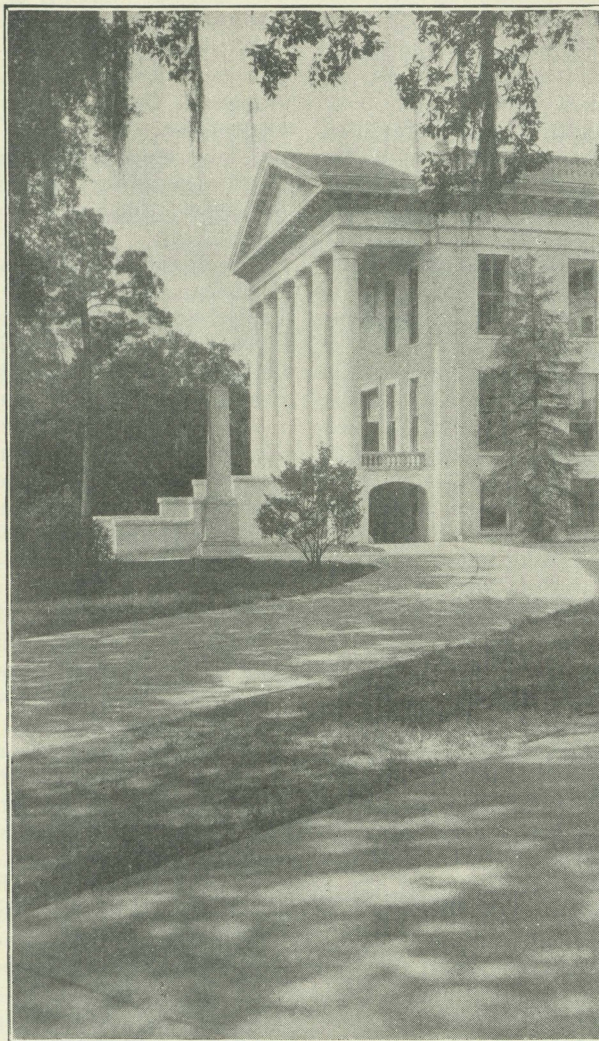
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F L O R I D A

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H I G H W A Y S

OCTOBER
1928

1929 Convention and Road Show, American Road Builders' Association

THE Convention and Road Show of the American Road Builders' Association will be held in Cleveland, Ohio, January 14th to 18th, inclusive, 1929. The convention program will be comprised of reports of several committees, made up of authorities in their respective lines, as well as especially prepared papers in the different phases of road and street construction and maintenance. Since the last convention the several divisions of the association have become very active and the reports of the committees of these divisions will constitute the educational and scientific part of the program at the convention.

The road show will include a larger number of exhibits than previously, due to the increased interest that is being taken by everyone engaged in the highway industry, and especially due to the presence of a large number of manufacturers who specialize on equipment for the construction, maintenance and operation of city streets, and who have not previously shown their products at the road show.

This year will mark the second national meeting of the County Highway Officials' Division. Although

the meeting of this division was very successful last year, the activities of its several committees has assured greater success at the coming convention. The county problems included in the construction, maintenance, operation and finance of county roads will be dealt with by these committees and the reports will constitute authority of the latest methods and practice in county construction and maintenance as well as recommendations for future practice.

During the past year a committee on grade crossings has been added to the County Highway Officials' Division. Mr. E. W. James, chief, division of design, of the Bureau of Public Roads, is chairman of this committee. Because of the general interest of this report it will be presented at one of the joint sessions of the convention. Mr. James' committee is already active on the preparation of this report and its scope will include standards, practices and recommendations for the handling of this most important problem. The fact that the number of grade crossings in the United States is steadily increasing in number rather than diminishing is another reason why this

problem is demanding the most serious consideration of engineers and officials.

The committees of the City Officials' Division have already presented their preliminary reports on administration, construction, maintenance and traffic of city streets and these reports, which will be presented in final form, will furnish the solution of many of the problems that confront the city engineer and official.

The activities of the City Officials' Division, especially as reflected through its committees, demonstrate the great interest taken by city engineers and officials throughout the country and their earnest desire in overcoming the many problems that are facing them.

The lack of information and uniform practice in the question of depreciation of road building equipment was the reason for the formation of a committee to treat with this subject. Mr. W. A. Van Duzer, assistant chief engineer of the Department of Highways of Pennsylvania, is chairman of this committee. A recent meeting of this committee was attended by representatives from all branches of the industry interested in this subject, including representatives from the Bureau of Internal Revenue, U. S. Department of Commerce and the Associated General Contractors. An outline of a report was discussed that not only reviews the present practice but presents recommendations that may be followed by the cities, counties and states as well as individual contractors.

At the present time contractors and public officials are subjected to a variety of laws controlling the practice of liens as they affect public work. This condition has become of sufficient importance to justify a committee to consider this subject. Mr. A. E. Horst, secretary-treasurer Henry W. Horst Company, is chairman of this committee. At the present time studies are being made at the Library of Congress and through other agencies to compile data to assist in the solution of better conditions in regard to this subject. The report will be presented by Mr. Horst.

In addition to the reports of the special committees there will be other papers presented by well known authorities on the subject. These papers will be of especial interest to the engineer, highway official and contractor. The reports will be followed by prepared discussions as well as being discussed from the floor of the convention.

Special sessions will be held by the Contractors' Division at which reports and papers of special interest to the highway contractor will be presented.

Tuesday, January 15th, will be known as City Officials' Day, and the activities of the convention on this day will be in the hands of the City Officials' Division.

The general meeting of the division as well as the business meeting will be held on this day.

Wednesday, January 16th, will be known as Pan-American Day. This is the third year that Pan-American Day has been held at the Road Builders' Convention. There will be a general session at which will be presented reports and papers by foreign engineers describing conditions and practices in their countries. Some of these will be described by stereopticons.

The Road Builders' banquet will be held on Pan-American Day and all delegates from outside the United States will be guests of the association.

Thursday, January 17th, will be County Highway Officials' Day. Reports of the several committees dealing with the problems of county construction, maintenance and finance will be presented on this day. All activities will be conducted by county officials.

The road show will be made up by approximately 500 carloads of road-building machinery and materials. Cleveland has provided additional area and the rush of applications for space has assured that this total area will be completely filled with the products of members of the Manufacturers' Division. The formation of the City Officials' Division of the American Road Builders' Association has attracted several new exhibitors to take space in order to display for the first time equipment and machinery that is especially suited for city work.

During the past year the great competition and low prices in road and street construction has created the demand for new labor-saving and cost-reducing machinery and equipment—that this is being met is quite in evidence from the new developments that will be presented by the members of the Manufacturers' Division at the next road show.

Reduced rates have been granted by the railroads throughout the United States, Canada and Mexico, and it is very evident that the attendance in 1929 will exceed the 25,000 that were present at the last convention.

The activities of the county and city divisions has created great interest among the engineers and officials that have the jurisdiction over the streets and roads of the cities and counties, and these men will form a large part of the attendance.

Cleveland is once again making every effort to have the visit of those attending the convention both interesting and profitable. It has organized several committees to assist in the convention and the hotel committee has assured that all attending the convention will have satisfactory accommodations.

CHILD SAFETY

WITH the opening of schools throughout the nation the City Officials' Division of the American Road Builders' Association urged all teachers to devote time to the teaching of highway safety. "Approximately 7,400 children were killed in highway accidents during 1927," the association declared. "Most of these accidents could have been avoided with proper education in the school and in the home."

The principal contributive causes of child deaths in street and highway accidents are those of children playing in the street, children crossing streets in violation of traffic law and coasting or stealing rides.

During 1927, as a result of the first two causes alone, 3,638 children of school age were killed.

"Teachers may render a real service to their communities by tactfully presenting the problem of child safety to their pupils. The teaching of the simple principles of courtesy and caution are preferable to the memorizing of a series of complex traffic rules and safety regulations.

"In presenting the problem of child safety, teachers are asked to have three objectives in view: First, to discourage playing in the streets. Second, to familiarize children with the movements of traffic and

(Turn to page 19.)

United States Route No 1—A Highway of Colonial History

STRETCHING from end to end along the 13 original colonies, United States Route No. 1 forms a highway of American history of more than 300 years, and might easily be called the Colonial highway. Washington traveled it repeatedly in peace and war. Now the 94-mile section, between New York and Philadelphia, carries a heavier average traffic than any other road of equal length in the world. Route No. 1 connects New York, Princeton and Philadelphia—the three cities at which the Capital was established in the early years of the Republic—with Washington, the final choice; and it passes near or through nearly all of the Revolutionary battlefields and many of those of the Civil War.

The motorist traveling the road today is reminded frequently of the life and customs of the early days by the ancient inns which have survived the passage of time, and which now boast—in many cases with truth—of having sheltered the Father of his country.

We are greatly indebted to the Bureau of Public Roads for many of the historical references in this article and to the State Highway departments for the illustrations and additional points of history.

Much more than a mere chance governed the location of United States Route No. 1. The fact that it follows the "fall line" from New Jersey to Georgia has both a physical and an historical reason. Along this line—the ancient shore line of the continent—the Atlantic coast rivers tumble down, cut out of the hills into the coastal plain. This physical fact influenced the location of Trenton, Philadelphia, Baltimore, Washington, Richmond, Raleigh, Columbia, and Augusta, all situated at the head of navigation on their respective rivers.

Colonial settlements were made at these points because they were the most inland points to which the colonists could penetrate by boat. Later, as intercourse began and grew between the settlements, the road which is now United States Route No. 1 was blazed as a trail, quickly widened into a wagon road, and early established as the most important inter-colonial road as it is now—from the standpoint of traffic at least—the most important interstate road.

Economically it is important because it connects the great manufacturing and industrial cities of the Atlantic seaboard, and also because it is the most east-

ward through road on which all streams are bridged. Consequently, it draws a very considerable local traffic from the peninsular territory to the east.

Connecting semi-tropical Florida with north-temperate Maine, the road is the principal tourist route from the large eastern cities to the winter resorts of the South and the summer resorts of New England. Its strategic value as a military road in time of war is the conclusive element which stamps this road as probably the most important, everything considered, in the United States.

Although the present improved condition of the road is the result of no more than 30 years of intensive work by the highway departments of the several states and the Federal Government, the route has been a traveled way of the first importance for more than three centuries.

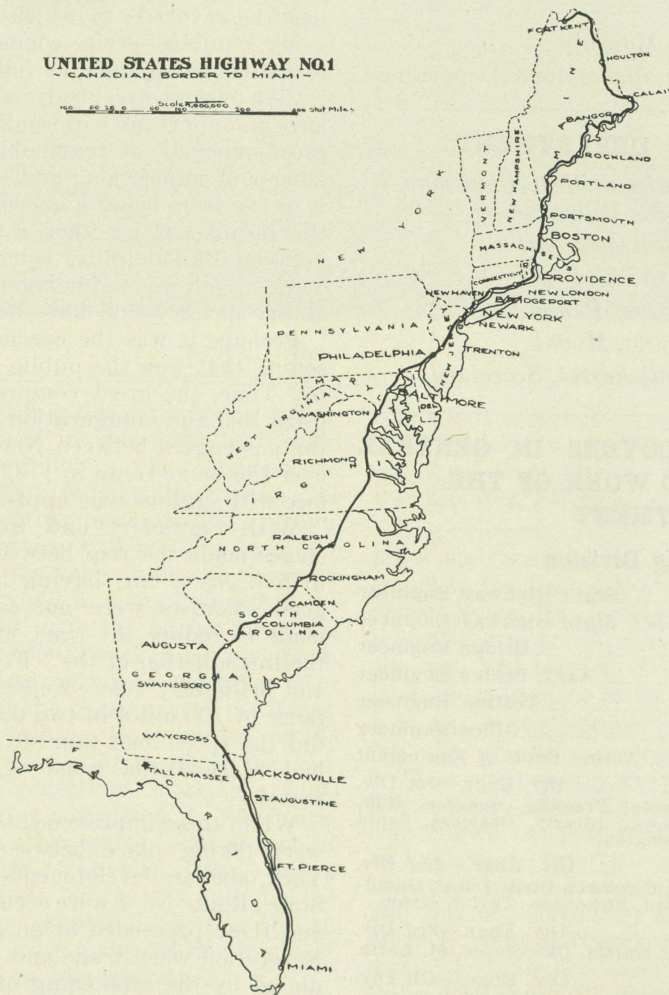
It was first developed as an artery of communication in the five principal localities from which radiated all the primary travel movements in this country. These foci of settlement were located in eastern Massachusetts, in the vicinity of New York Bay and the valley of that Great River of the Mountains which we now know as the Hudson, in the Connecticut River Valley and the shores of Long Island Sound, in the country surrounding the shores of Delaware Bay and the Delaware and Susquehanna Rivers, and in the Chesapeake Bay region, including the valleys of the James and other Virginia rivers.

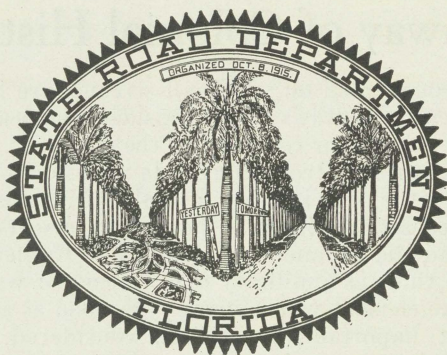
As early as 1636 efforts were made to facilitate travel over the general line of the present route. At first these

were limited to the blazing of trees to mark the way, the building of crude bridges over the deeper ravines, the locating of fords over shallow streams and the establishment of canoe ferries across the wider rivers.

Later as, first the pack horse and subsequently the cart, and stage coach, and Conestoga wagon came to replace the primitive foot travel of the earliest days, the road was widened, the low places were "corduroyed," and finally there were added, in places, artificial surfaces of stone and gravel similar in many respects to the macadam and gravel roads of the present day.

By the close of the seventeenth century, Boston, New York and Philadelphia had become bustling and





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thriving towns and travel between them by horseback and pack horse was common.

The first coaches appeared in the streets of Boston in 1687 and were severely frowned upon by that Puritan community for their luxury. Almost coincidentally there came into use for freight carriage a form of crude cart of which, by 1697, there were 30 in Philadelphia and a number in New York.

It was perhaps with one of these that the first common carrier service in America was established over a part of Route 1 under a franchise granted by the Governor of New Jersey. That such a service had been established between Philadelphia and New York some time prior to 1707 we learn from a complaint laid before the Governor by the Colonial Assembly in that year. Probably at the instigation of the pack horse owners, the assembly asked that the monopolistic privilege be revoked; to which the Governor replied, as many a public service commissioner since has replied to similar complaints, as follows:

"At present everybody is sure, once a fortnight, to have an opportunity of sending any quantity of goods, great or small, at reasonable rates, without being in danger of imposition; and the sending of this wagon is so far from being a grievance or monopoly, that by this means and no other, a trade has been carried on between Philadelphia, Burlington, Amboy and New York, which was never known before, and in all probability never would have been."

Perhaps it was the cogeny of the Governor's reasoning that won the public over; perhaps it was simply Time, the great compromiser. At any rate, we learn that the inauguration of a regular stage service for passengers between New York and Philadelphia, over this same route in 1732 was greeted by the populace with enthusiastic appreciation.

With regularity and comparative comfort these stages made the trip between the two terminal cities in five days; but, having had a taste of speed, the good colonists were not satisfied, and efforts were made to reduce the time, culminating, in 1771, with the introduction of the "Flying Machine," an ornate and brilliantly colored coach that negotiated the distance of 100 miles in two days. Then, and then only, did the speed-mad tourists of the day feel that they had reached the acme of perfection in inter-city travel.

While these improvements in the facilities of travel were taking place between Philadelphia and New York, similar developments along the line of United States Route No. 1 were occurring in the other colonies, and these proceeded at an accelerated pace after the Revolution when trade and communication were stimulated by the awakening of a national consciousness in the newly fledged states.

By 1802 stage coaches were operated regularly between Boston and Savannah, and travelers made the journey of 1,200 miles at an average speed of 53 miles a day for the remarkably low fare of \$70. The schedule of time and fare prevailing at this period was as follows:

	Days	Fare
Boston to New York.....	4	\$10.00
New York to Philadelphia.....	1½	5.00
Philadelphia to Charleston.....	15	50.00
Charleston to Savannah.....	2	5.00
Total.....	22½	\$70.00

It was at this time—the dawn of the new century—that the earliest turnpikes were built. Traffic on the



East of Road 4 in New Smyrna

main roads had increased to a density which demanded a greater degree of road improvement than could be carried out with the available public revenues; and private initiative undertook to meet the need. The turnpike companies, operating under public charters, were our first public service corporations; and the roads they built during the early years of the nineteenth century were the equal in many respects to the best the country possessed until the beginning of the modern period of improvement nearly a century later.

For a few years the construction of turnpikes went on apace—so rapidly that the Secretary of the Treasury, Albert Gallatin, reporting to Congress on the state of public improvements in 1808, noted the completion of 770 miles in Connecticut, more than 3,000 miles under construction or completed in New York, and hundreds of miles in other states. The section of the Boston Post Road near Greenwich, Conn., now a part of United States Route No. 1, was built by the third turnpike company chartered in the United States, and within a few years many other sections of the route were improved in like manner.

One of these sections—that between Trenton and Brunswick, N. J.—according to Gallatin, was constructed with a grade 36 feet wide surfaced for a width of 15 feet with 6 inches of gravel. The road was nearly straight and had a maximum gradient of 3 degrees, to attain which in one section it was necessary to excavate a cut 30 feet deep. Wooden bridges were constructed on stone abutments and piers, and the cost of the road, according to the secretary's report, was \$2,500 a mile.

But the turnpikes proved to be unprofitable investments. Few of the companies were able to show, even at first, net earnings of more than 2 or 3 per cent, and as time went on and the cost of maintenance increased—as, finally, the railroads came to take away a large part of the traffic, even these small profits vanished. Most of the companies had failed and their

roads had reverted to public control by 1850; but a few remained in operation after a fashion, and it was not until very recent years that the last toll gate was removed from the line of Route No. 1.

The railroads sounded the death knell of the turnpikes and ushered in the "dark ages" of highway travel in the United States; and, by a strange coincidence, Route No. 1 connects all the points at which the earliest railroad experiments were made, as if the old road had carried the new idea in transportation from place to place to its own eventual undoing.

It was on the western slope of Beacon Hill, in Boston, that the first quarter mile of track was laid, in 1807, as a temporary gravity road for hauling gravel. Three years later Thomas Leiper, of Philadelphia, constructed the first permanent tramway in America to haul stone from his quarry to the river landing three-quarters of a mile away. Another 20 years, and the first section of the Baltimore and Ohio was opened from Baltimore to Ellicott's Mills, 14 miles away; and, in the same year, way down the road, "The Best Friend," first American-built locomotive, was placed on the rails at Charleston.

Thus, at four points, the road bore the first shock of the railroad advance. That it could not compete with the superior advantages of its steam-powered adversary, and that it fell into general disuse and almost complete decay for well upon 70 years—these adversities it suffered in common with all other American roads, but—

When, finally, the bicycle, the automobile, and motor truck came to give new facility to highway travel and transportation, Route No. 1 was one of the first to feel the tingle of new life.

Five of the states through which it passes were among the first seven to establish state highway departments, and it was consequently one of the first American highways to benefit from the more scientific



Project 608, Road 4. North End of City of Eau Gallie, Brevard County.

methods introduced by these efficient engineering agencies.

Highway transportation is incomplete without bridges, but long before bridges people crossed streams by the use of ferries. The evolution from ferries to bridges is fittingly exemplified in the crossing of the Kennebec River at Bath, Me.

Back in 1760, 15 years before the Revolutionary War, John Quincy Adams, of Boston, later the President, rode down a bridle path on horseback in the virgin forest that later was to be Bath, and crossed the Kennebeck on a crude craft propelled by one man with an oar. Adams was riding to Lincoln County, then in Massachusetts, to transact business at the Court of General Sessions. The primitive ferry he rode his horse onto was known as Mayne's ferry.

And 167 years later the "Governor King," huge sidewheeler, essayed to rival the old Mayne's ferry feat of taking a future president over, by conveying 36 governors of various states across in one summer.

But the real tale of the evolution of the ferry dates back to when the Indians navigated the river in their birch-bark canoes before arrival of the white man. Stories of the ferries of civilized man in this section are recorded prior to 1762 when Mayne's ferry began to operate.

The first licensed ferry was when Samuel Harnden was allowed to "keep and maintain" a ferry across the Kennebec River, which he did until his death in 1769. He was succeeded by his son. The ferry remained in the Harnden family until 1830, when Thomas P. Stetson introduced a horse-drawn ferry. Later he placed a cable across the river for propelling the craft.

About this time a group of prominent Sagadahoc County men incorporated a company, which introduced more modern transportation means.

They introduced the "Sagadahoc," one of the first

steam-propelled ferries; Captain Wyman Morse, grandfather to Charles W. Morse, financier, was the first commander.

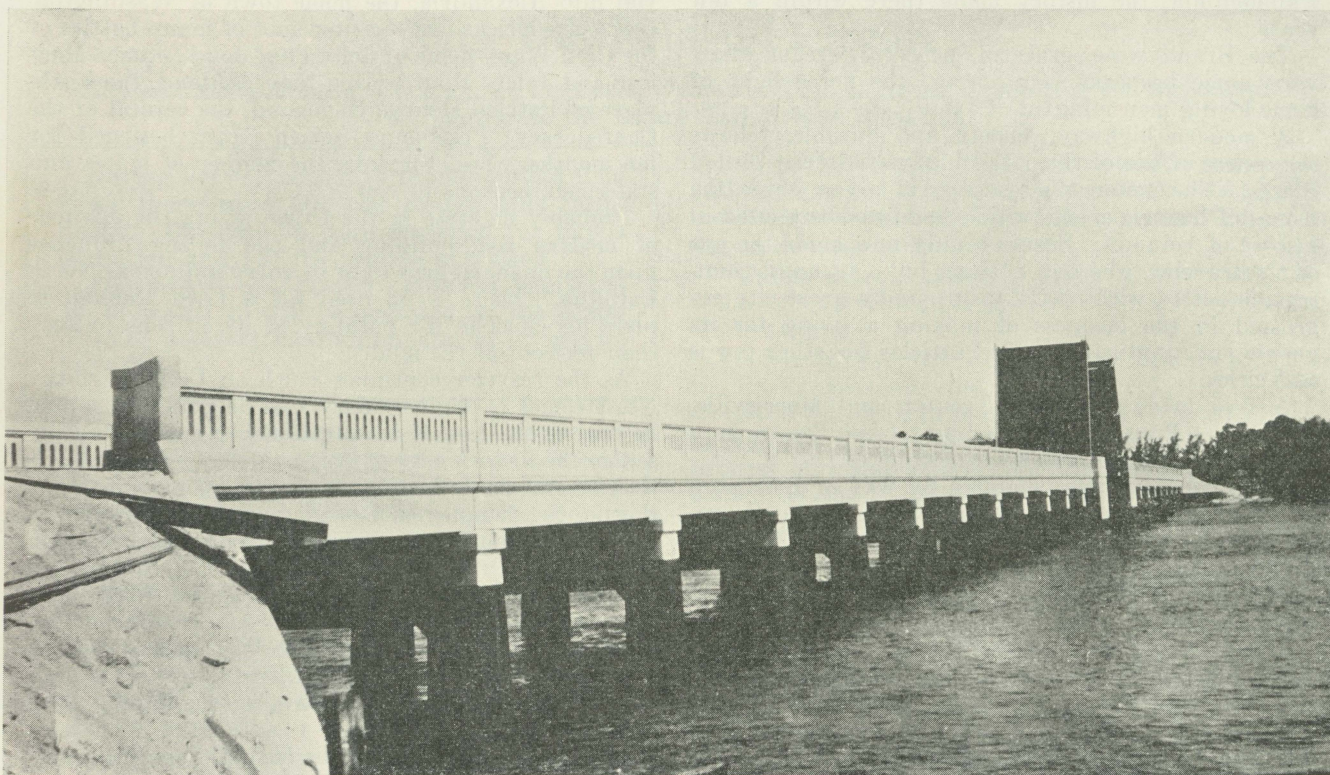
It was not until 1920 that the state took over the ferry. Then came the rush of tourists and it became evident that soon ferry transportation over the river would have to go, and on November 15, 1927, a bridge was dedicated. From 1760 to 1927 seems like a long time to "bridge" our transportation difficulties.

While New Hampshire possesses the least amount of shore line of any sea coast state, what she has is noted for great beauty and historic interest. It was in 1623 that this state established its first colony near Rye. New Castle is the site of Fort Constitution, started in 1665 by Charles II. Portsmouth is the leading city and port, where the leading industry is the United States navy yard, more than 100 years old.

Portsmouth has the unique distinction of being the home of the oldest Masonic lodge in America. St. John's Lodge No. 1, A. F. and A. M., instituted June 24, 1736, and continuously holding stated communications to date.

Boston, March 5, 1770, the first bloodshed in the Revolution; the Tea Party, Old North Church, where Paul Revere hung his lantern; the frigate "Constitution," Park Street church, where "America" was first sung, and then Cambridge, home of Longfellow, and Harvard, the oldest college in America; Charlestown, with its Bunker Hill; Concord, which reminds you of Emerson, Hawthorne, Thoreau and the Alcotts—and present-day roads enable you to see these places and many more all in a day.

This route enters Rhode Island in the city of Pawtucket, a thriving city of diversified manufacturing interests. The most interesting old landmark in Pawtucket is the stone Slater mill where in 1793 Samuel Slater established the first real cotton manufacturing plant in America and which, restored to its original



Project 656, Loxahatchie Bridge.

appearance, has become a shrine to which textile manufacturers from many countries have made pilgrimages.

Bordering next to Pawtucket is the city of Providence, founded by Roger Williams in 1636, situated at the head of navigation on Narragansett Bay and well known as "The Southern Gateway of New England." It ranks as the second city of New England and also ranks high among the industrial centers of the country. In addition to being the state capital, it is the home of Brown University and many other old and famous institutions of historic interest, and industrially is known the world over for products from some of its large mechanical and textile manufacturing. Roger Williams Park, covering 432 acres, with its chain of lakes, beautiful drives and rose gardens, is one of the famous beauty spots of the city.

Of course Connecticut is known to the present generation for its Hartford and Yale University, but Sunday, May 31, 1638, may be regarded as one of the most important dates in American history, as well as that of Connecticut. On that day Thomas Hooker preached a sermon, the principles of which became the basis of political organization in the United States. The leading article was "That the choice of public magistrates belongs to the people by God's own allowance." Influenced by this address, on January 14, 1639, a document was written and approved concerning which it has been said: "It is the first example in history of a written constitution, a distinct organic law, constituting a government, and defining its powers."

"In 1672 was established the Boston Route 'To goe monthly from New York to Boston' via Hartford." An ancient card dated 1697 describes the place on the "Poste Route where travelers could find entertainment for man and beast."

In 1614 Adrian Block set sail from New Amster-

dam up Long Island Sound and landed on a point of land now known as Tod's Point, which they called Horseneck because of the peculiar shape of the promontory jutting into the sound. This was the first settlement in Connecticut and probably in New England. Later on other explorers came, extending the name of Horseneck to what is now known as the main business section of Greenwich, now also famed as the Mecca for moving picture producers seeking beautiful locations.

This celebrated route barely touches the state of New York, but since it passes through the city of New York, the largest city on the continent, much could be said and yet the story hardly begun. New Rochelle, settled by the Huguenots in 1689, is en route north; here Howe's troops were quartered when many would have preferred them to be domiciled elsewhere. Rye was the home of James Fennimore Cooper.

From the Delaware to the Brandywine is sacred ground. The 70-odd miles spanned by the "Baltimore Pike" from Trenton to the Dixie Line were measured inch by inch, marked with blood and forever hallowed by weary patriots struggling against the "redcoat" horde in the Revolution.

Trenton and a certain Christmas night, when hired soldiers, lacking the fire and loyalty of men fighting for freedom and a home hardly won, yielded to a starving, half-clad band of patriots who were to wear with pride the name of American.

Philadelphia, cradle of Liberty, seat of Government, producer of great men and scene of the creation and signing of the Constitution of the United States of America. The Flag was created there. There the first Congress went into session. There Benjamin Franklin, styled the first civilized American by moderns, contributed so much in science, statesmanship and humble home-making. The Penns, who created it, scarcely could have dreamed the importance of

Philadelphia, the history made there within a few years.

The Brandywine, graceful, peaceful stream whose very name bespeaks war horror, the fierce fight of home-loving men mindful of family.

A modern highway, smooth and durable, follows the course of one of the oldest highways in the United States. The motorist may cover in a few hours the scenes of historic events which could not be recited in a score of volumes. Scenic beauty now holds the eye of the traveler, who sees nothing but a tranquil countryside dotted with pretty towns, and a great city engrossed in the business of making a living for its people and producing needed articles for other towns and cities.

A free bridge connects Trenton and Morrisville, where the "Pike" begins. General Jacob Brown, hero of the War of 1812, was born near here.

The Pike leaves Philadelphia by way of Baltimore avenue, Media boasts the oldest court house used continuously in Pennsylvania. The Battle of the Brandywine is marked here by monuments.

Baltimore, the "Monumental City," is a fitting terminus for this historic trail.

Baltimore was first in many things, none the least of which was the fact that she erected the first monument to the life and services of George Washington.

Here is Fort McHenry, of "Star-Spangled Banner" fame, the last resting place of that turbulent poet, Edgar Allen Poe. Other states boast of their early beginnings and yet in the Westminster burial grounds in the heart of this bustling city is the grave of Mary Smith—buried before the Mayflower landed in New England.

Washington, the nation's capital, merits a week's visit, and the crossing of this route over the new Arlington Memorial bridge makes a fitting gateway between the North and the South.

Crossing the Potomac "at Arlington," the resting place of the nation's warriors, "real roads" soon lead

you into Alexandria, the home town of Washington. On to Fredericksburg—center spot of many battles of the Civil War—home of John Paul Jones, James Madison and James Monroe; and then Ashland, the birthplace of Patrick Henry; Richmond, the capital of the Confederacy; Petersburg, which Grant besieged for ten months. Yes, Virginia, the mother of states and statesmen, beckons to you.

Probably no state in the Union shows the advance of modern road-building and the telling influence upon the financial growth of its surroundings as North Carolina. There is no need for a Lord Raleigh to place his cloak in the pathway of its citizens to keep their feet out of the mud.

As the traveler continues south on U. S. Highway No. 1 comes to the boundary line of South Carolina, he crosses the tawny Savannah River and finds himself in the historic city of Augusta, Ga. The first settlement was made in 1735 by General James E. Oglethorpe, the founder of Georgia. A Celtic cross now marks the site of Fort Augusta, which was named in honor of the Princess Augusta.

Here was erected a granite shaft to the three Georgia signers of the Declaration of Independence; beneath it lie the bodies of George Walton and Lyman Hall, the body of Burton Gwinnett was obscurely buried in Savannah—his grave never having been marked.

At Louisville, which was the first state capital, may be seen an old slave market and other interesting things indicative of pre-war days.

In contrast with the rigors of the North are the balmy days in Florida, and these extremes of climate are all in one country and on one road. Seeing is believing, and yet everything is not new even here. St. Augustine has a fort begun in 1638 and some one was working on it for a period of over 100 years.

Age often adds beauty as well as serenity. There is no better proof of this than a trip over this old colonial highway.—American Highways.



Project 562-B, Road 8, Polk County.

The Toll Bridge Octopus

Representative John J. Cochran, of St. Louis, Demands That a House Committee Be Appointed to Investigate the Entire Toll Bridge Situation

During the first session of the Seventieth Congress there were 201 toll bridge bills introduced. Of these 79 were proposed for public operation and 122 for private operation.

The bridge bills finally approved numbered 90, of which 28 will be operated by the States or some political subdivision, and 62 by private agencies.

DURING the closing days of the last session of the Congress, Representative John J. Cochran, of Missouri, in a speech before the House, presented the toll bridge situation to the members in a very impressive fashion. As this is a matter of great concern to the highway traveling public, we give herewith the full text of Mr. Cochran's remarks:

"Convinced the highway toll bridge, privately owned, should no longer be sanctioned by Congress, unless proper provisions are made to safeguard the public interest, I propose at the opening of the next session to introduce a resolution providing for a thorough investigation of the toll bridge question.

"My resolution will either provide for an investigation by the Committee on Roads or a special committee consisting of five members of the Committee on Roads and five members of the Committee on Interstate and Foreign Commerce. The Roads Committee would, I feel, be the proper committee to make such an investigation.

"The Committee on Roads has jurisdiction over all legislation affecting public highways as well as Federal aid for road construction, and while the Committee on Interstate and Foreign Commerce considers all bridge legislation, it simply approves applications for bridge franchises.

"I hope by such an investigation to show beyond question, first, that individuals and corporations have petitioned and secured from Congress its consent to construct bridges when as a matter of fact the sole purpose was to sell the franchise; second, to prove a large number of projects have been financed far in excess of the actual cost; third, disclose that the majority of the privately owned toll bridges are charging excessive tolls, some earning as high as 50 percent on the actual investment; fourth, that the situation calls for an immediate revision of the privately owned toll bridge bill forms.

"The revision of the bridge bill forms is most important. The bills should provide, first, that the individuals or corporation can not assign the grant, but must either construct the bridge or forfeit the rights; second, that all privately owned toll bridges shall be subject to the jurisdiction and supervision of the Government if an interstate bridge, and by the States, county, or municipality if an intrastate bridge; third, that a provision be inserted providing for the creation of a sinking fund, where a certain percent of the tolls shall be deposited; this money to be used to retire bonds, and when all bonds are retired the bridge shall be forever free; fourth, that some provision be made whereby the Government shall have control over the amount of securities that can be issued in connection with an interstate bridge, and by the States in the case of intrastate bridges.

"The consent of Congress certainly should be

vested in the corporation that actually constructs and operates the bridge, and not in the name of promoters who simply dispose of their rights, thus adding to the cost of the structure.

"Unless drastic action is taken by the Congress, toll bridges will dot the Federal aid highways of the United States.

"A survey just completed by the Bureau of Public Roads discloses that on October 1, 1927, there were 233 toll bridges operating in the United States, and on the same date 29 other toll bridges were in process of construction. Of the 233, but 42 were owned by the public, the remaining 191 being privately owned. Of the 29 under construction, 9 will be operated by the public, 2 by States, 4 by counties, and 3 by cities, while 20 will be operated by private corporations. How many projects where Congress had granted its consent to construct, but where building operations had not as yet started, were not included in the report. This report listed two new bridges as under construction near my home city, St. Louis, one at Alton, Ill., and the other at Bellefontaine, Mo.; but did not include the new bridge at the Chain of Rocks, just north of St. Louis, now nearing completion.

"Two hundred and fifty-three bridge bills were favorably reported by the Committee on Interstate and Foreign Commerce of the House from December 5, 1927, to May 29, 1928, or during the session just closed. About 235 of these bills became laws.

"This in itself presents an alarming situation. The owners of 23,000,000 motor vehicles operating in the United States are paying for the construction and maintenance of roads by the tax on gasoline and license taxes. When their money is used to bring the road to a bridge approach where tolls are collected, can any good reason be advanced why part of the bridge tolls at least can not be set aside in a sinking fund to ultimately retire the securities so that eventually the bridge shall revert to the municipalities, counties and States and be operated as free bridges thereafter? This certainly is not confiscation of property for public use without just compensation, because if proper provisions are made in the bills providing for recapture the owners will be liberally paid for their holdings before the securities are retired. The promoters will fully understand the conditions confronting them before engaging in building operations, because the agreement will be embodied in the law.

"To say the Government, with absolute control over navigable streams and control over interstate commerce, can not carry out the suggestions heretofore advanced is not sound reasoning.

"I know that some of my colleagues, especially some who have been handling bridge legislation, will disagree with me, but I predict without fear of contradiction if a bill embodying these features is presented to the Congress it will pass by an overwhelming majority.

"The comptroller rendered a decision in which he held Federal aid funds could not be used in the construction of any road leading to a toll bridge. Mr. Denison, of Illinois, chairman of the subcommittee on bridges of the Committee on Interstate and For-

eign Commerce, introduced a bill—H. R. 18—in the last session, which, if enacted, would have permitted the use of Federal aid funds for this purpose. Hearings were held by the Committee on Roads, at which some rather startling as well as interesting facts were disclosed.

“The committee is to be congratulated on its action in declining to report the bill, for in my opinion such a law would have inspired promoters to increased activity in advocating privately owned toll bridges. It developed at the hearing that the provision upon which the decision was based was placed in the road act for the sole purpose of discouraging toll bridges and toll roads.

“Mr. Denison, who has had a great deal of experience and made a thorough study of toll bridges, made an extensive argument in favor of his bill. I have read his views and when he points out the States are heavily taxing the people to provide road construction, he advances, in my opinion, a real argument why the money of the people so taxed should not be used to construct a road that will lead them to a bridge where they will be required to pay a toll to private individuals, the owners probably living a thousand miles from the site of the bridge, and having no other interest in the structure other than to gouge the public.

“Again I say, to have passed this bill would have resulted in a flood of applications being made to Congress for the construction of toll bridges by private individuals.

“In some instances, it must be admitted by all, toll bridges are a necessity, and especially interstate bridges which can not always be constructed by the States and municipalities. In such cases public-spirited citizens should be encouraged to promote the construction of bridges and not permit get-rich-quick promoters to exploit the public.

“During the hearing Mr. Robison, of Kentucky, a member of the committee, cited the situation in his State. He told of how the bridge promoters employed about one-third of the main lawyers in Kentucky and subsidized newspapers in making their drive to build privately owned toll bridges in that State. He also told of one toll bridge which cost the neighborhood of \$20,000. The Dixie Highway was constructed, brought to the point where the bridge crosses the Kentucky river, and in 1927 Mr. Robison said over \$120,000 in tolls were collected by the owners of this bridge.

“The situation in Louisville, where the city saw the wisdom of borrowing money at a rate of 4½ percent to construct a bridge, the tolls to be used to retire the bonds and then make it a free bridge, was cited at the hearings. If Louisville can eliminate the private promoter why can other cities not do likewise?

“The investing public should scrutinize all private toll bridge securities before purchasing. Mr. MacDonald, who as Chief of the Bureau of Public Roads has studied this question very thoroughly, said before the committee that the only service that may be rendered by private toll companies in connection with bridges is the supplying of capital from investors for the construction. He holds this is both unnecessary and a costly service to the public. He insisted that, generally speaking, these bridges are of sufficient importance that the public can have the benefit of the bridges without spending a cent from property taxes or without putting a dollar of

property behind the bonds issued. In other words, he maintained through the use of revenue bonds, a bond issued against the earnings of the bridge, the public can have the benefit of bridges on the main traffic highways and pay for them, pay the security off, out of the earnings of the bridge.

Mr. MacDonald, in my opinion, has an opportunity to perform a real public service. No individual connected with the Government is better informed on the highway question. He knows the toll bridge situation, agrees that it is a menace, and is the proper official to lead the fight against this octopus. In my judgment he must, however, assume a more aggressive attitude, care not who he hurts, so long as he is waging a fight for free public highways. He is in a position through his bureau to secure the information that will destroy the toll bridge monster which feasts upon the pocketbooks of the public. I suggest to him that he prepare now to submit to the Secretary of Agriculture in his annual report a comprehensive review of the toll bridge situation, showing in detail how these get-rich-quick promoters have gouged the public and offer comparisons of their projects with those of legitimate promoters, who have not only secured in their own right the consent of Congress to construct bridges, but have retained that right, properly financed their projects, and erected the bridges. This information should reach the Secretary of Agriculture in time for him to place the matter before the President, so that the Chief Executive can, if he so desires, make such recommendations to the Congress in his annual message as he deems advisable.

“An outstanding project which was discussed at the hearing was a bridge over Lake Pontchartrain in Louisiana. Private individuals secured permission to construct a bridge which required a very long approach. It connected with what is known as the Old Spanish Trail. The State a few miles away connects up the same roads with free bridges, with the result that a bridge which some estimate as having cost \$5,000,000 has no earning power. Who is going to lose on this investment? Why, the public, purchaser of the securities, of course.

“Mr. MacDonald maintained in his statement that the private promoters used every means at their disposal to prevent the construction of the free bridge, not only taking the matter to the courts but tried to make it an issue in the elections. It was because there was a great prize in the way of tolls that would accrue to the private toll bridge that funds were available to defeat the will of the public, and that is one of the very serious things that is happening continuously, according to Mr. MacDonald.

“On behalf of the American Association of State Highway Officials, Mr. W. C. Markham appeared in opposition to the Denison bill and suggested if the committee did intend to report the bill to so word it that the State highway departments would have the same control over the bridge as they now have in the construction and maintenance of Federal aid road projects. Mr. Markham insisted—and his statement bears out my views often expressed on the floor, but challenged time and again by Mr. Denison and others—that the States have no look-in on the construction of toll bridges after Congress once grants the franchise. The States have nothing to do, nothing to say, as to what the plans shall be or as to whether they are correct or not. Mr. Markham further argued that when the time comes for con-

Contracts Awarded by State Road Department January 1st, 1928, to October 17th, 1928

Contractor—	Project No.	Road No.	County—	Length Miles	Length Feet	Contract + 10 %	Type
Sutton Bros.	55-B	14	Alachua	457	\$	54,272.17	Concrete
General Const. Co.	677-D	13	Levy	1,335		43,000.98	Timber
Frost Const. Co.	710-B	17	Hillsboro	260		54,775.16	Concrete
Sutton Bros.	764-B	50	Suwannee	113		19,043.82	Conc. Overh'd.
Duval Engr. & Contr. Co.	677-D	13	Levy	8.91		110,370.35	R. B. S. T.
E. F. Powers Const. Co.	710-C	17	Hillsboro	12.69		95,125.45	C. G. & G.
B. Booth	755	17	Polk	11.22		58,518.86	C. G. & G.
Little & Lee	757	2	Polk	10.26		63,516.17	C. G. & G.
Little & Lee	758	2	Polk	8.34		46,380.34	C. G. & G.
Gilbert & Hadsock	732	17	Polk	8.94		57,077.26	C. G. & G.
C. G. Kershaw Contr. Co.	736	39	Holmes	8.58		45,097.93	C. G. & G.
C. G. Kershaw Contr. Co.	709	39	Holmes	9.09		53,931.71	C. G. & G.
Morgan-Hill Paving Co.	61-C	1	Gadsden	9.77		244,581.31	Concrete
Franklin Const. Co.	710-A	17	Hillsboro	6.18		38,592.08	C. G. & G.
E. M. Chadbourne	697	1	Escambia	.14		3,401.25	Surface
Robert G. Lassiter & Co.	683-A	4	Palm Beach	8.04		264,999.43	Concrete
Rutherford Const. Co.	695	2	Lake	3.00		46,992.07	R. B. S. T.
S. G. Collins	827		Escambia	8.12		50,151.29	C. G. & G.
M. C. Winterburn, Inc.	61-A	1	Gadsden	10.00		231,578.27	Concrete
Phoenix Asphalt Paving Co.	669-X	27	Collier	9.40		28,814.77	Surface T'd.
Everglades Const. Co.	62-C	24	Osceola	11.83		115,303.71	C. G. & G.
A. D. Weeks	62-D	24	Osceola	12.62		83,299.72	C. G. & G.
A. D. Weeks	62-A	24	Osceola	12.52		66,571.01	C. G. & G.
R. C. Huffman Const. Co.	807-A	25	Palm Beach	10.81		201,713.22	R. B. S. T.
R. C. Huffman Const. Co.	807-C	25	Palm Beach	6.14		99,923.54	R. B. S. T.
C. A. Steed & Son, Inc.	804	67	Glades	18.55		416,083.52	R. B. S. T.
Duval Engr. & Contr. Co.	659	3	Clay	7.25		95,449.25	R. B. S. T.
Silas Gibson	815	54	Okaloosa	13.58		60,680.23	C. G. & G.
W. J. Bryson Paving Co.	819	54	Okaloosa	4.69		20,979.67	C. G. & G.
W. J. Bryson Paving Co.	823	41	Okaloosa	9.18		34,085.34	C. G. & G.
W. J. Bryson Paving Co.	824	41	Okaloosa	9.81		59,898.02	C. G. & G.
Perkins Const. Co.	820-B	96	Jefferson		114	4,881.25	Timber
Maddox Foundry & Mach Co.	743	10	Bay		120	13,774.47	Timber
C. C. Hayes	802-A	10	Okaloosa	8.67		76,559.56	C. G. & G.
P. R. Alsobrook	661	2	Lake	0.10		1,980.00	C. G. & G.
Central Station Equipment Co.	769	5	Lee	.70	4430	585,216.61	Concrete
Collins Const. Co.	803	10	Okaloosa	11.13		82,342.33	G. & D.
Nelson Brothers	56	10	Leon	17.982		430,409.67	Concrete
Manly Construction Co.	53-C	2	Lake	2.85		67,778.57	Bit. Conc.
Broadbent Constr. Co.	719	5-A	Suwannee	8.57		91,044.80	R. B. S. T.
Duval Engr. & Contr. Co.	764	50	Suwannee	12.00		140,666.31	R. B. S. T.
Wm. P. McDonald Const. Co.	687-B	2	Lake	15.22		209,058.24	R. B. S. T.
Curry & Turner	802-C	10	Okaloosa	10.24		45,545.92	G. & D.
H. E. Wolfe	669-W	27	Collier	16.00		58,856.15	S. T.
Baker & Lewis Const. Co.	740	10	Gulf	9.62		37,400.00	Hauling rock
Alexander, Ramsey & Kerr	669	27	Collier	32.00		39,720.00	Guard Rail
L. L. Pararo Const. Co.	685	10	Franklin	14.43		93,500.00	Hauling rock
H. E. Wolfe	669-V	27	Collier	31.62		116,314.44	S. T.
W. B. Wright	723 & 724	66	Leon	21.41		33,000.00	Hauling S&C.
Total.....				462.20	6,829.0	\$4,992,256.22	

struction the States have no look-in as to whether the private corporation sublets to some of their own crowd at a certain price. He suggested that if such protection was assured the States then, as in road building, public bidding could be arranged for construction.

"Mr. Denison expressed the opinion Mr. Markham did not fully understand the situation, but the chairman of the committee replied that Mr. Markham may understand, but the Interstate Commerce Committee may not understand what it is doing.

"Mr. Denison also suggested that the committee not inquire into the form of bridge bills and offered to appear at some other time if the committee would like to discuss that subject and give an analysis of the bridge situation. That is what I desire to accomplish by my resolution, but I want others besides Mr. Denison speaking on the subject because it is evident that all do not agree with his views as to the amount of protection the present bills extend to the public and States. There is a vast difference of opinion between Mr. Denison and many I have talked with, some insisting the present forms are absolutely useless when it comes to protecting the general public. As Mr. MacDonald pointed out, the law gives authority, but does not direct, the Secretary of War to make certain examinations of these projects. He also insisted that outside of giving jurisdiction to the War Department to pass on the location of piers neither the Government nor States

had any jurisdiction over the character of bridge to be constructed, nor as to the amount that could be spent. This has been my contention, but Mr. Denison is not in accord with this view. A thorough investigation will disclose who is correct.

"Mr. MacDonald fully agrees with me in reference to allowing promoters to sell franchises because he says it is his opinion as a first condition of the granting of a franchise the public has a right to demand that those who seek the exclusive right to operate a bridge upon a public highway shall give evidence of a sincere purpose to build the bridge for which the franchise is sought, and if after the franchise is granted conditions develop that make it impossible for the holder to carry out his implied agreement to build, the right to dispose of the franchise should rest in the public only and not in the individual or corporation, and he adds, just as I have contended all along, it is difficult to conceive of any sound public reason for the granting of assignable franchises, and the fact that its confidence has been gravely abused in many instances, should incline the public to look with suspicion upon application for this form of franchise.

"Some months ago I thought I ended the activities of E. M. Elliott, who boasted in the press that he had over 33 projects, some secured in his own name and others in the name of citizens of a community, but during the last two weeks of the session I was twice approached by Members of Congress—one from

Oregon and the other from the State of Washington—advising me Elliott was in that part of the country and was trying to prevail upon citizens to secure franchises from Congress for him for two bridges. Both assured me they would have nothing to do with any bridge project in which he was interested in any way.

"The vice president of a very large financing company called at my office and told me they had paid Elliott for his rights in connection with certain grants; that Elliott had nothing to do with the construction or financing after they took the projects over. He was paid solely for the franchise which the Congress voted him to construct a bridge which he had no intention of building. How many more individuals are engaged in this business only an investigation such as I propose will disclose.

"Mr. Markham made a rather amazing statement before the Roads Committee during the course of his testimony, when he brought out that Senate Reports 121, 123, 124 and 128, and House Reports 410, 425, 434, 435, 439 and 440 all state the toll bridges referred to had the approval of the Secretary of War and Secretary of Agriculture, when, as a matter of fact, all letters in the reports from the Secretary of Agriculture definitely stated he opposed the construction of the bridge. Mr. Markham further pointed out in other cases where the Secretary of Agriculture thought the bridge should not be constructed no mention was made of his opposition in the report.

"I have just examined each of the reports referred to and find Mr. Markham's statement to be correct. I am sure this will prove to be a surprise to Members of the House as well as the Senate.

"Strange as it may seem, nevertheless it is true, less attention is probably paid to bridge bills than any other class of bills introduced in Congress. When a bill is introduced copies are sent to the Committee on Interstate and Foreign Commerce of the House. The clerk sends one copy to the Secretary of War, who passes solely on the question as to whether it will obstruct navigation. Another copy is sent to the Secretary of Agriculture. When the reports are received the bill is referred to a subcommittee of three members, known as the bridge committee, which prepares the report or has the clerk prepare it, report the bill to the full committee, which automatically votes its approval, and the bill is sent to the House and placed on the Unanimous Consent Calendar. I am told not more than six hearings were held on all the bridge bills reported to the House at the last session.

"It was only a few years ago that permits to construct dams across navigable streams for power purposes were authorized in this same manner, but finally Members were aroused and the water power act was passed.

"No better law could be enacted than one giving the Secretary of War and the Secretary of Agriculture joint control over the issuing of permits to construct bridges in the United States. The Bureau of Public Roads, a part of the Department of Agriculture, has an organization that can take this work over without delay. It has its engineers, and cooperating with the Chief of Engineers of the Army, whose trained force could supervise the construction of bridges jointly, they could see that the specifications were carried out and supervise the issuing of securities, and so forth.

"Bridge construction is a very important factor in our national defense, and no better training for the engineers of the Army could be secured than in supervising the construction of these bridges.

"We have the power under the Constitution to carry out such a plan and unless a better suggestion is advanced I propose to recommend such a law when Congress reconvenes, through the introduction of a bill.

"Such a plan will not only be a guaranty to the public that its interests will be properly safeguarded, but it will relieve Congress of a great deal of unnecessary work.

"The Bureau of Public Roads and State officials at present are denied information relative to the revenue derived from certain toll bridges, the cost of construction, amount of securities issued, and so forth; but a committee of Congress duly clothed with proper authority can get such information, and it should be secured and made public.

"When the Bureau of Public Roads shows that the total capital already invested or probably to be invested in 424 toll bridges which were in operation, under construction, or known to be in contemplation on October 31, 1927, was approximately \$547,000,000, together with several hundred additional millions, to construct the bridges authorized during the session just closed, we are certainly justified in asking for an investigation.

"As an example of exorbitant charges and excessive earnings by the operators of toll structures I will cite several cases. The Bureau of Public Roads is authority for this statement.

"One structure was built in 1911 at a cost of about \$25,000. Its gross income—only 8 percent of the investment in the first year of operation—increased with increase in the traffic to a maximum of \$46,311, or 185 percent of the original cost, in 1924. For the 15-year period from 1912 to 1926, inclusive, this bridge earned an average annual income equal to nearly 75 percent of its original cost. In 1925 a new toll bridge was opened a thousand feet downstream, and the earnings of the first bridge fell off from the 1924 peak of \$46,311 to about \$500 in 1926.

"The Williamsport, Md., bridge, which cost \$87,000 in 1907, had a total income of \$56,273.31 in 1926; net income of \$41,678.22.

"The Columbia River Bridge, near Portland, Oregon, cost \$1,683,556 in 1917, and had a net income in 1926 of \$480,000, or 29 percent of the original cost. Is it any wonder the biggest fight ever staged in Congress against the granting of a franchise to construct a bridge was made by people from Portland, when the application for a bridge over the Columbia river at Longview was pending?

"So far as is known, the over-capitalization of the Gandy Bridge in Florida, which I called to the attention of the House when I showed E. M. Elliott was the securities sales manager, is in a class by itself. The organization expenses of this bridge as listed in the office of the Florida Railroad Commission, which by special statute has control of the bridge, as \$2,704,136, which is 125 percent of the tangible property value of \$2,138,554. The outstanding bonds, representing \$2,934,500, exceed the cost of the tangible property and, in addition, there is outstanding \$2,000,000 worth of stock. The gross income in 1926 of \$743,868 was only 15 percent; but it was 34 percent of the cost of the tangible property.

"I firmly believe a full investigation of the bridge



Underpass South of Ocala on Road 2.

situation will bring to light numerous cases of exorbitant charges and inflation and will in the end mean the death of the toll bridge, privately owned, as it will arouse the people to such an extent that the promoter will disappear from the picture.

"The fight on toll bridges which I inaugurated during the session just closed has just started, and while I had few supporters at the outset, I am pleased to say a large number of the Members are now showing a vital interest in the subject and stand ready to assert themselves at the proper time.

"I serve notice now that no toll bridge bills, where the consent of Congress to construct is vested in private individuals or corporations, will be passed by the House at the next session of Congress if I can prevent it until the present forms have been revised and an investigation held by a committee of the House on this subject. I shall offer no objections to the bills where the consent is given to a city, county, or State, but I will object even though the officials of the city, county or State are named in the bill.

"The toll bridge must disappear from the public highway as did the old toll gate."

Toll Bridge Survey

From a survey made by the Bureau of Public Roads of the toll bridge situation, and filed with the Congress, we print the following excerpts:

This survey of toll bridges in the United States was undertaken by the Bureau of Public Roads to make available factual information for the use of Federal and State legislative bodies in formulating laws and policies to safeguard and to control this public problem wholly in the public's interest. The movement to secure franchises all over the United States for private toll bridges came suddenly and found both the State and Federal laws relating to this subject inadequate. Twenty-three million motor

vehicles operating over the highways of the Nation produce a traffic measured in vehicle-miles so enormous that the totals are beyond our imagination. Gasoline consumed gives an estimate of the amount the highways are now using. Based on last year's consumption of 10,596,000,000 gallons, it is estimated that the vehicle-miles totaled more than 137,000,000,000. Each year shows an increase. The improvement of the main traffic arteries by the States and by the State and Federal Government in co-operation, has rapidly provided roadways on which the traffic concentrates. The lure of sudden wealth beckons him who might secure the right to erect toll gates on these lines of heavy motor traffic, present or prospective. So there is the temptation to secure franchises for private toll bridges which are in effect toll gates through which traffic flows not so much because of the bridge itself as because of the improved highways which permit traffic to reach the bridge. At a time when there are very large demands upon capital for the building of bridges, the toll bridge for certain structures and particularly in some States meets a real need, but the question of the building of bridges through tolls and the question of the terms of the franchises are two very different matters. Assuming that a toll bridge must necessarily be built if a bridge is to be supplied within a reasonable time, there are two phases which are most important. These are the interests of the public which pays and the interests of the public which invests. The question, therefore, of toll bridge policies in the United States ought to be settled to conserve and to foster these interests in the highest degree possible.

The principal facts developed through this toll bridge survey bearing upon these two major interests are as follows:

Summary

1. On October 1, 1927, there were 233 toll bridges in operation on the highways of the United States. Of this number, 42, or 18 percent, were owned by the public, and 191, or 82 percent, were owned by private interests.

2. On the same date, 29 were in process of building. Of these, 9, or 31 percent, were owned by the public, and 20, or 69 percent, were owned by private interests.

3. Authorizations for 55 toll bridges on which construction had not commenced were granted by the Sixty-ninth Congress. Of these, 12, or 22 percent, were granted to public agencies, and 43, or 88 percent, were granted to private interests.

4. Up to April 30, 1928, there had been introduced in the Seventieth Congress bills providing for the authorization of 122 new toll bridges not previously authorized. Of these, 39, or 32 percent, were for public operation, and 83, or 68 percent, were for private operation.

5. Of the 122 bridges covered by bills introduced in the Seventieth Congress up to April 30, 1928, 67 have been definitely authorized by the passage of the bills and signature by the President. Of these 67, 16, or 24 percent, will be operated by public agencies, and 51, or 76 percent, by private interests.

6. In addition to the bridges covered by bills introduced, passed by the Sixty-ninth Congress or introduced in the Seventieth Congress up to April 30, 1928, as enumerated above, there are 78 other bridges which, according to the information obtained by the bureau, were under consideration or proposed on October 31, 1927. Of these, 28, or 36 percent, were proposed as public bridges, and 50, or 64 percent, were to be operated by private interests.

7. Of 424 toll bridges in operation, under construction, or proposed, for which information was available on October 31, 1927, 217 are on the system of Federal aid highways—the main traffic highways of the United States.

8. Private toll bridges are dependent for their income upon traffic flowing to them over highways built from public funds.

9. There are outstanding examples of obstructionist tactics on the part of private toll bridge interests to prevent the building of free bridges by the public or the securing of legislation to permit States to secure legislation advantageous to the public.

10. There are outstanding examples of over-capitalization of private toll bridges.

11. Where necessary capital is not available for free bridges, the public can secure advantageous loans of the necessary capital from the best banking houses by issuing revenue bonds; that is, bonds to be retired from the revenue earned by the bridge itself. Such bonds are not a debt in the constitutional sense against the community, and when issued for a necessary and desirable improvement are sound financing.

12. Federal aid is available under the terms of the Oldfield amendment to build bridges. The capital supplied by the State can be retired through collection of tolls.

13. There are few if any instances where private toll bridges are desirable or sound as a public policy.

If the proposed bridge is a necessary improvement, that is, if it is to be built where the traffic flow will be sufficient to carry the investment, the

public can build cheaper and borrow the necessary capital on more advantageous terms than can private interests.

If the proposed bridge is not a sound financial proposition, the bonds or securities can only be sold at a heavy discount. The investing public is certain to lose heavily if some of the private toll bridges for which franchises have been granted are built.

The promoters of toll bridges do not finance toll bridges with their own funds. They depend upon the investing public. The fact that some toll bridges are notable revenue producers deceives the investing public as to the earning capacity of all proposed toll bridges.

Number and Ownership of Toll Bridges

Within the United States and on the international boundary on October 1, 1927, there were 233 operating toll bridges; and on the same date there were 29 other bridges in process of construction.

Of the 233 bridges in operation, 42 were owned by the public, of which number 7 were owned and operated by State governments, 20 by county governments, and 15 by cities. The remaining 191 were owned privately—154 by toll bridge companies and 37 by railroad companies. Twelve of these new private bridges are on the international boundary.

Of the 29 new structures that were under construction, 9 were owned by and will be operated by the public—2 by States, 4 by counties, and 3 by cities. The other 20 were in process of building by private corporations of which 18 were toll bridge companies and 2 were railroad companies.

Geographical Distribution of Bridges

Of the 262 bridges in operation and under construction on October 1, 1927, 155 are intrastate bridges in 31 States; 95 span streams which constitute the boundaries of States, and 12 are international bridges, of which 5 are on the Canadian boundary, 1 in Minnesota and 4 in New York, and 7 are on the Rio Grande in Texas.

There are only nine States that have no toll bridges in operation or building within the State or on a boundary stream. These are Colorado, Connecticut, Delaware, Massachusetts, Nevada, New Mexico, Rhode Island, Utah and Wyoming. The other 39 States all have at least one toll bridge in operation or under construction within or on the borders of their respective territories.

Pennsylvania with 19 intrastate bridges and 11 interstate structures in operation or under construction had a greater number than any other State. Florida was not far behind with 25 intrastate bridges and 1 interstate structure, and Kentucky with 9 intrastate and 12 interstate structures was a close third. The other States had each at least one intrastate or interstate structure.

There were 14 toll bridges in operation on the Mississippi river and 4 more under construction, the latter all in Missouri. In the States east of the Mississippi (exclusive of the Mississippi bridges) there were 119 bridges built or building, and west of the Mississippi (again excepting the bridges on that stream) there were 125 structures financed by tolls.

Types of Bridges and Amount of Investment

There is a wide variety in the types of existing toll bridges. Some are excellently designed; others are mere makeshifts. Perhaps the lowliest in the United



Road 3. Orange City, Volusia County.

States is the bridge over the Cannonball river at Cannonball, N. Dak. For passage over this structure, which cost about \$300 and which is merely two wheelways supported flimsily on piles, the charge for an automobile is 50 cents, and the same charge is made for a horse-drawn vehicle, notwithstanding the lack of a floor between the wheelways which makes it necessary to unhitch the horses and wade them over while the wagon is pushed across.

In sharp contrast with this miserable structure is the recently completed Philadelphia-Camden bridge over the Delaware which cost the Delaware River Bridge Joint Commission \$35,614,000.

Between these two examples representative of the extremes of design the bridges now in operation are of almost every conceivable type. There are old covered wooden bridges such as the one over the Connecticut river at Windsor, Vt., which was built in 1866 and is operated under a franchise granted in 1795.

There is the excellent new steel arch recently completed at a cost of \$866,000 near Twin Falls, Idaho. This bridge, which spans the Snake river, is said to be the highest in the world. Its floor is 476 feet above the surface of the river. Other notable structures are the excellent open-spandrel concrete arch bridge at Allentown, Pa., which cost \$524,000; the concrete trestle bridge built at a cost of \$1,585,000 over the San Joaquin river at Antioch, Calif.; and the "Bridge of the Gods," a steel cantilever structure over the Columbia river, the investment in which amounts to \$593,000.

In general the privately owned toll structures are of a lower type of construction than the bridges built by the State highway departments; but there are notable examples of excellent workmanship such as the bridge over the Carquinez Strait in California and the Bear Mountain Bridge in New York. In

many cases it is apparent that a low first cost has been the prime consideration and maintenance costs may be expected to run high after a short period of years. In other cases the bridges have been designed for such light loads that they will soon be overtaxed by the developing traffic. Among such cases are a number of the suspension bridges over the Red river, some of which are on the Federal aid highway system.

It is estimated that the total investment in the 233 toll bridges that were in operation on October 31, 1927, is approximately \$118,000,000, of which about \$45,000,000 is in publicly owned and \$73,000,000 in privately owned structures.

The 29 bridges previously listed as under construction on the same date involve a further investment of nearly \$116,000,000, of which nearly \$75,000,000 is in the 9 publicly owned, and about \$41,000,000 in the 20 privately owned structures.

The probable additional investment in 162 structures known to have been in contemplation at the time of the bureau's survey was estimated at approximately \$313,000,000, of which nearly \$255,000,000 was for privately projected bridges and about \$58,000,000 for bridges proposed for public operation.

Summarizing these figures, it appears that the total capital already invested or probably to be invested in the 424 bridges which were in operation, under construction, or known to be in contemplation on October 31, 1927, was approximately \$547,000,000.

Toll Bridge Earnings

Information obtained with regard to the earnings of the 233 toll bridges that were in operation at the time of the bureau's survey shows that these bridges, which were built at an estimated cost of \$118,-



Scene East of Road No. 4 in Cocoa.

000,000 earned in 1926 a net operating income of \$13,809,000 or 11.7 percent of the estimated cost. This is the income after deduction of all usual operating expenses but before deduction to cover depreciation and interest on the funded and unfunded debt.

Of the above total, the earnings of the 42 publicly owned bridges was \$3,611,000, an amount which was approximately 8 percent of the estimated cost of \$45,000,000. The \$10,198,000 earned by the 191 privately owned bridges in operation was 13.9 percent of the estimated cost of \$73,000,000. These are average figures for 233 structures, and although it is apparent that the publicly operated bridges supplied transportation service at a lower cost than the privately operated structures, it may be said that the average cost in neither case was excessive.

There are, however, numerous instances of exorbitant charges and excessive earnings by the operators of toll structures.

One structure, which can not be named because the information was obtained in confidence from the owner, was built in 1911 at a cost of \$25,000. Its gross income—only 8 percent of the investment in the first year of operation—increased with increase in the traffic to a maximum of \$46,311, or 185 percent of the original cost in 1924. For the 15-year period from 1912 to 1926, inclusive, this bridge earned an average annual gross income equal to nearly 75 percent of its original cost. In 1925 a new toll bridge was opened a thousand feet downstream and the earnings of the first bridge fell off from the 1924 peak of \$46,311 to about \$500 in 1926.

The Williamsport Bridge carries United States Route 11 over the Potomac river near Williamsport, Md. It is owned by the Washington & Berkeley Bridge Co. Data furnished by the Maryland Public Service Commission show that the original cost of this bridge in 1907 was \$87,000. The common stock

of the company is \$100,000. The total income earned in 1926 was \$56,273.31, and the net operating income after deduction of all operating expenses was \$41,678.22. In that year the company paid a dividend of \$32,000, or 32 percent on par value of the common stock.

The Columbia River Interstate Bridge is a combination highway and street-railway bridge over the Columbia river on United States Route 99 at Portland, Oregon. It is a publicly operated bridge owned by the Columbia River Interstate Bridge Commission. It was built in 1917 at a cost of \$1,683,556, and information from the auditor of the commission shows that its total operating income in 1926 was \$533,291, of which approximately \$40,000 was from street-railway traffic and the balance from the highway traffic. This publicly operated bridge earned a net operating income in 1926 of about \$480,000, or 29 percent of the original cost. At this rate of earning the entire cost of the bridge would be paid by the traffic in four years.

A glaring instance of over-capitalization is furnished by the Gandy Bridge, a privately owned toll structure over Tampa Bay between Tampa and St. Petersburg, Fla. According to the 1926 report of the Florida Railroad Commission, which, by special statute has regulatory control of the bridge, the organization expenses of this bridge are listed at \$2,704,136, which is 125 percent of the tangible property value of \$2,138,554. Of the total investment of \$4,866,558, as reported, but little over 40 percent is represented by tangible property. The outstanding bonds representing \$2,934,500 exceed the cost of the tangible property and in addition there is outstanding \$2,000,000 worth of stock. On the basis of the capitalization the gross income of \$743,868 in 1926 was only 15 percent; but it was 34 percent of the cost of the tangible property.



Project 666, Road 6, Jackson County. Surface-treated Sand Clay.

Public Financing of Major Bridges

It is asserted by those interested in the construction of private toll bridges that there is urgent need for numerous bridges over large streams, which are not being built by public agencies and which can not be so built for lack of revenue sufficient for the purpose. The toll bridge interests argue, therefore, that since these bridges are needed, private initiative performs a laudable public service in building them. It should be borne in mind that whether the bridges are built by private initiative or by public agencies it is the public that ultimately pays for them. The only difference is that when they are built by the public agencies the public is asked to pay only the cost of construction, whereas the private builders must also expect a profit on the investment.

As an indication of the additional burden the public is required to assume to support a toll bridge investment, the following is quoted from a report published on January 26, 1927, by the State highway commissioner of Washington, which made an investigation of the relative merits of toll and free bridges by direction of the State legislature.

"In the following table the cost to the traveling public of service rendered by the toll bridges, covered in this report, is compared with the cost for the same service had these bridges or ones of equivalent usefulness been constructed by the State or counties and operated as free bridges.

Name of bridge	Average yearly cost of service to the public		Percentage of cost of toll bridge service to free bridge service (percent)
	As a free bridge (including sinking fund and interest)	As a toll bridge (not including taxes)	
Pasco-Kennewick, 1925	\$28,390.99	\$55,472.23	195
Pasco-Burbank	15,810.00	25,854.76	163
Metalline Falls	4,384.00	8,879.66	202
Vancouver-Portland	116,400.00	333,000.00	285
Nasel River, 1925	11,812.00	21,910.62	185

"From this table it is apparent that the cost of service on all the toll bridges on the highway system of Washington is from 63 to 185 percent higher than the cost of similar service if the bridges were free bridges.

"Of the total amount of tolls collected, the following approximate percentages were spent for the collection of tolls and other incidental expenses due to the fact that the bridges are operated as toll bridges rather than free bridges.

	Percent
Pasco-Kennewick Bridge	20
Pasco-Burbank Bridge	16
Metalline Falls Bridge	26
Nasel River Bridge	27
Vancouver Bridge	15

It may be admitted that, for various reasons, it is not always possible to finance the cost of free public bridges out of the available tax revenues. But the public agency always has open to it the same course that the private bridge building interests follow. It can borrow the necessary capital, and it can do it without incurring a public debt in the constitutional sense by issuing revenue bonds to be retired from the revenue earned by the bridge itself. That is, the public can itself build a toll bridge with money borrowed on the security of the anticipated toll revenues. It can repay the debt with these revenues and free the bridge as soon as its cost is repaid.

There is an active market for toll bridge bonds and the public can sell its bonds on terms that are usually more favorable than those available to private builders. The existing public agencies can erect and operate the bridges as efficiently and economically as the private owners; and, if the tolls are abolished when the bridges are paid for, the public is saved the payment of the profits which are the inducement responsible for the increasing private interest in toll bridge construction.

Franchises Should Be Carefully Guarded

Assuming that the construction of a toll structure is the only way in which the need for a bridge can be met in a reasonable time, and that the public is unable or unwilling to undertake the construction so that resort must be had to private initiative, then the question of the terms of the franchise must be very carefully considered.

Toll bridges are distinctly public utilities and the interests of the public must be conserved by regulation as in the case of other recognized public utilities. Such regulation is essential not only for the protection of the users of the utility but also for that other section of the public which will invest in the undertaking; for it must be borne in mind that the promoters of toll bridges do not finance the construction with their own funds.

As a first condition of the granting of a franchise the public has a right to demand that those who seek the exclusive right to operate a bridge upon a public highway shall give evidence of a sincere purpose to build the bridge for which the franchise is sought. If, after the franchise is granted, conditions develop that make it impossible for the holder to carry out his implied agreement to build, the right to dispose of the franchise should rest in the public only. It is difficult to conceive of any sound

public reason for the granting of assignable franchises; and the fact that its confidence has been gravely abused in many instances should incline the public to look with suspicion upon applications for this form of franchise.—American Highways.

WOMEN DRIVERS AND AUTO ACCIDENTS

By **MRS. D. EDWIN MILLER**, Vice-Pres. in Charge of Home Safety, Western Pennsylvania Safety Council, Pittsburgh.

Women drivers have already made an enviable record of freedom from accident in driving. In Allegheny County, Pennsylvania, with a population approaching two millions, Coroner William J. McGregor reports that since 1923 only one woman driver has been involved in a fatal automobile accident. It is interesting to note that during the years 1923-1927, inclusive, there were 1,351 automobile fatalities in Allegheny county. While it is true that women drivers have been greatly outnumbered by men, nevertheless the record of only one woman involved in a total of more than 1,300 fatalities, calls forcibly to our attention the fact that women are better, much better drivers than they are commonly given credit for.

Women as a rule do much less driving than men, and frequently little of that driving is in heavy traffic. As a result, when they get into a jam they are more likely, through lack of experience, to become timid or excited, with disastrous results. The obvious cure for such a condition is greater familiarity with conditions that are met while driving and with proper methods of meeting all possible situations. When we consider that frequently a large part of a woman's driving is in carrying children to and from school, the importance of safe driving is increased, not only for the safety of the children but as an example to them. That women should have opportunity for instruction is self-evident.

Recognizing this fact, and recognizing the automobile as an extension of the modern home, the Home Safety Division of the Western Pennsylvania Safety Council, as one of the phases of its work, organized the Safety Drivers School for Women, in Allegheny county, under the auspices of the Safety Council.

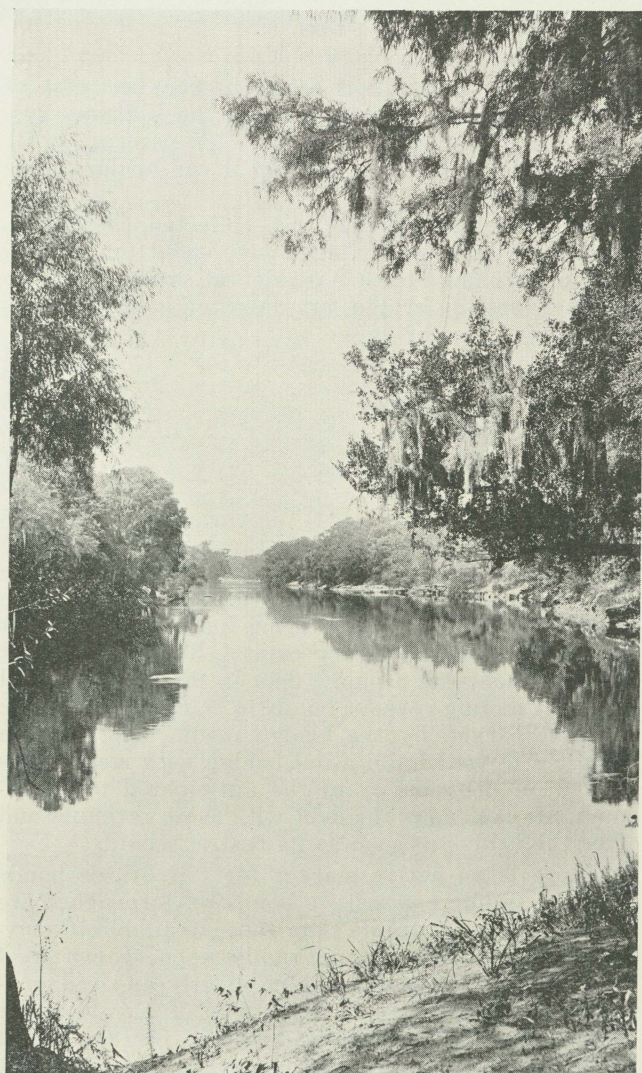
Our first Safe Drivers School for Women was distinctly a success. I am quite sure that any similar enterprise which commands intelligent and whole-hearted cooperation from a large number of able people will be a success. Every city in the country—every community, indeed, where there is any considerable number of women drivers—should have its Women Drivers' Club with the motto, "Pedestrians should be seen and not hurt"; a club where social considerations are kept in the background and where the common interest in the welfare and safety of all who use the roadways is the dominant note in all discussion and activity.

(Extract of an address before the Seventeenth Annual Safety Congress, New York City, Oct. 5.)—Public Safety Magazine.

Caller: "Does Herbert K. James live here?"

Landlady: "Well, he did, but the poor chap accidentally drowned in the bathtub two days ago."

Caller: "Nope. That's not Herb. He was never in a bathtub."—Stevens Stone Mill.



Famous Suwannee River, Just North of State Road No. 1

CREOSOTED TIMBER BRIDGES DOT SCENIC HIGHWAY OF ST. JOHNS COUNTY, FLORIDA

Approximately Forty Bridges Similarly Designed to Be Built on New Highway About Fifty Miles in Length

Typical of approximately forty highway bridges being built in Florida on State Highway No. 47 is the one built over Trout Creek in St. Johns County. This highway when completed will provide a direct north and south route for heavy through traffic between Jacksonville and Hastings and thence to the southern part of the State. It extends along the east side of St. Johns river and has been designated by the Florida Legislature as St. Johns County Scenic Highway.

The several streams intersecting this highway are spanned by treated timber bridges designed to meet the standards of the State Highway Department of Florida. Most of these bridges are comparatively short, that spanning Trout Creek being 340 feet long.

This bridge consists of 20 spans 15 feet long, with a center draw span 40 feet long, built to permit logging operations and the passage of small boats. This draw span consists of 20-in. "I" beams, to the upper flanges of which are attached 4-in. by 6-in. nailing strips, and the flooring is supported directly upon these steel beams. The flooring is 2-in. by 4-in. lumber, S4S, laid on edge, toe-nailed to the stringers and horizontally nailed to each adjoining floor piece, and covered with a bituminous wearing surface.

Dense southern pine was used throughout with the exception of the bulkhead sheeting and sway braces, which are square edge and sound southern pine. The only untreated timber in the bridge is the hand rails, which consist of two lines of 2-in. by 6-in. and one line of 2-in. by 4-in. lumber, 85 percent heart, and given two coats of white lead paint.

All other timber in the bridge was treated under pressure with coal-tar creosote in accordance with the standards of the American Wood Preservers' Association. The timbers not in contact with the water were given an absorption of 12 lbs. per cubic foot, but the piling was given a heavier absorption of 16 lbs. per cubic foot, since these streams become somewhat salty from the tidal waters of the Atlantic Ocean and are therefore more or less infested with marine borers. All cuts in the treated timber necessitated during construction were given applications of hot coal-tar creosote, and in addition to this protection the pile cut-offs were given an additional coat of pitch and a waterproof cover before the caps were put into place.

The piles range in length from 30 feet to 65 feet, are driven four to the bent, and secured in position transversely with 3-in. by 10-in. sway bracing, two to the bent. The bents are spaced on 15-ft. centers and every third span is stiffened with 3-in. by 10-in. longitudinal sway bracing. The piles are capped with 12-in. by 12-in. by 22-ft. 6-in. timbers, shaped along the top face with a 3/4-in. crown. Eleven lines of 6-in. by 12-in. by 16-ft. stringers are secured to the caps with 5/8-in. drift bolts.

The bulkheads are double lap sheet piling, built up of 2-in. by 8-in. sheeting nailed to 3-in. by 10-in. wales, and secured to the end bent and wing-wall piles.

The rail posts are 4-in. by 6-in. at the bent location, and 4-in. by 4-in. at intermediate points, secured to the caps and stringers by 5/8-in. marline bolts.

All of the bridges in this project were designed and their construction supervised by C. Samuel Johnson, County Engineer, St. Johns County.—Wood Preserving News.

CHILD SAFETY

(Continued from page 2.)

methods for conducting themselves accordingly. Third, the instillation of an habitual practice of courtesy and caution at all times while on the street or highway."

The City Officials' Division also recommended the opening of playgrounds for children in congested districts. Children should be taught to enjoy these playgrounds and encouraged to use them.

"More than twice as many children are killed between the ages of six and ten years than during any other equal period of years. Playgrounds are essential for these children. They must have an accessible outlet for their desire to play, and if such is not easily available they will turn to the street as the next best thing."

Children not only endanger their own lives by playing in the streets or crossing in violation of traffic law, but they also endanger the lives of motor vehicle drivers, according to the City Officials' organization. A large number of serious accidents occurred last year when motorists swerved from their course in order to avoid striking children, it was stated.

Parents were asked to play a part in educating the child in the principles of courtesy and caution. "It is not enough for the parents to warn children to be careful when they are sent off to school. The child must be taught the whys and wherefores of the warning in a simple and convincing manner. It should be made to appear a point of honor for children to be cautious and to encourage each other to be cautious.

"By education in the home and reiteration in the school room, the children of this country should soon become more responsible while on the street and highway."

Parent-teacher associations, civic clubs and church organizations were asked by the City Officials' Division to launch local movements for the protection of children.

These organizations may appeal to their individual members to set an example for their children and to call attention to that example. They may organize elaborate local movements in behalf of courtesy and caution. In these they will receive the co-operation of the American Road Builders' Association through the City Officials' Division at Washington, D. C.

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52 Percent of Traffic Accidents are Suicides By Carelessness

By **CHARLES M. UPHAM**, Director, American Road Builders' Association

DURING every twenty-four hours of 1927 an estimated average of 2,261 persons were killed or injured in highway accidents—one every 39 seconds! The estimated economic loss resulting from these accidents was \$672,097,000 not including insurance premiums—nearly two million dollars every day of the year.

The 1927 casualties, according to the American Road Builders' Association, showed an increase of 1,316 deaths over 1926. The total fatalities for 1927 was placed at 26,618, and the number of serious injuries at 798,700. Minor accidents involving property damage only were not taken into consideration in the statistical report released by the association, although these accidents have been estimated to occur at the rate of 25,000 daily.

What do these figures show? Do they mean that the American people are becoming inherently reckless at the wheel of an automobile? Do they mean that modern cars are too fast or too inefficient to be safely operated on our present system of streets and highways and under the present traffic regulations?

A careful analysis of these figures will show that no one thing may be stated as the cause of highway accidents. Such an analysis, however, will show the following facts:

1st. That the human factor is responsible for 95 percent of all accidents and the mechanical factor responsible for the remaining negligible portion.

2nd. That the human factor which causes highway accidents is in a large degree caused by certain definite physical conditions, such as complex traffic laws, traffic congestion, discourtesy on the part of other motorists, carelessness on the part of other motorists, physical incompetency, lack of confidence in the mechanical dependability of a motor vehicle and the improper conduct of pedestrians.

3rd. That approximately sixty percent of all fatalities are pedestrians.

4th. That more than 7,300 of the fatalities in 1927 were children of school age, and that nearly twice as many persons were killed between the ages of 6 and 12 than during any other similar group of years between 1 and 70.

5th. That although highway accidents increased considerably during 1927, that increase was not out of proportion to the increased registration of motor vehicles and the growth in population.

6th. That accidents involving pedestrians continue to grow in number faster than accidents involving two vehicles or collisions with immobile objects.

A great mass of data has been collected by organizations interested in highway safety. Study of this material has resulted in many and varied conclusions as to the best method for reducing accidents. The American Road Builders' Association last year made such a study, and concluded that the individual alone could be held responsible for curbing the fast growing number of fatal and non-fatal highway accidents. A campaign for Courtesy and Caution was launched and the slogan found its way into thousands of schools, churches, civic and industrial organizations and private homes of the United States.

The Courtesy and Caution method for reducing highway accidents is marked with simplicity. A

study of the statistical information available has led to the following objectives to be used in the conduct of such a campaign for national highway safety:

1st. The education of pedestrian traffic in the principles of simple courtesy and caution while on the public street. The use of common sense is recommended in lieu of the cut and dried adherence to a complex list of safety rules.

2nd. The thorough examination and licensing of all drivers of motor vehicles.

3rd. The adoption of a uniform simple code of traffic laws, both state and municipal.

4th. The education of drivers in the principles of simple courtesy and caution.

No accurate detailed information as to the causes of accidents and the number occurring is available. The figures given in this article, however, are approximate and are drawn from all accessible information. The following synopsis of the relative importance of accident causes is given to emphasize the paramount necessity for the practice of Courtesy and Caution under varying conditions.

It is estimated that 11,765 persons were killed during 1927 in accidents caused principally by motorists. Fatalities caused principally by pedestrians is placed at 11,367, and those resulting from accidents caused principally by physical conditions at 3,486. In estimating for tabulation the various causes for these accidents, the American Road Builders' Association has used a progress report issued by the National Automobile Chamber of Commerce for 100 cities in 1926. The table follows:

FATALITIES CAUSED PRINCIPALLY BY MOTORISTS

Total killed in 1927		11,765
Inattention	32 pct.	3,765
Speeding	23 pct.	2,706
Traffic violation	20 pct.	2,353
Intoxication	9 pct.	1,059
Miscellaneous	16 pct.	1,882

FATALITIES CAUSED PRINCIPALLY BY PEDESTRIANS

Total killed in 1927		11,367
Children playing in the street or crossing in violation of traffic regulation	32 pct.	3,638
Adult jay-walking	27 pct.	3,069
Inattention	16 pct.	1,819
Confusion	14 pct.	1,591
Other causes	11 pct.	1,250

FATALITIES BY OTHER CAUSES

Total killed during 1927		3,486
Fog, snow or rain	37 pct.	1,290
Defect in vehicle	19 pct.	662
Skidding	16 pct.	558
Road defect	11 pct.	383
Strong lights	7 pct.	244
Poor street light	7 pct.	244
Confusion in dimming	3 pct.	105

From the foregoing table it may readily be seen that most highway accidents are from causes which cannot be regulated by any number of traffic regulations. The three principal causes—inattention,

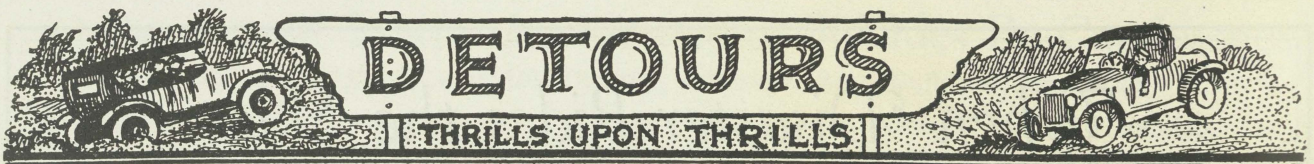
(Turn to page 22.)

When Disaster Rides the Skies

THE poster which Chapters of the American Red Cross will display throughout the country from November 11 to 29, inviting the people to join the Red Cross for another year, symbolizes the services of relief and rehabilitation provided by the "Greatest Mother" when disaster strikes. Throughout the past year the Red Cross has been engaged continually in disaster relief work at home and has extended assistance in many catastrophes abroad. The poster was painted by Cornelius Hicks.



Our Greatest Mother
+ JOIN! +



The more lawbreakers, the more laws; the more laws, the more lawbreakers. That explains everything.—Detroit News.

A clergyman, about to enter a bus, noticed a gentleman seated in the corner who had celebrated rather too well that evening.

"Do you allow drunkards in your bus?" the clergyman inquired of the conductor.

"Well, not as a rule," said the conductor solicitously, "but slip in quietly."—Buddgette.

The unusual thing happened in a Southern town the other day when a negro woman committed suicide.

"Why is it, Rastus," an old negro was asked, "that so few negroes ever commit suicide?"

"It's dis way, boss; when a white man gets in trouble and sets down to worry over it, he gets despret and kills himself. When a nigger sets down he goes to sleep."—New Hampshire Manufacturer.

A Word to the Wise

A deaf woman entered a church with an ear trumpet. Soon after she had seated herself, an usher tiptoed over and whispered—"One toot and out you go!"

"Did you hear what happened to Jones?"

"No, do tell."

"He got drunk in Venice and tried to lie down in the gutter."—Cornell Widow.

A Scotchman was discovered wandering around Detroit with a pair of rumpled trousers over his arm. "Can I help you in any way?" asked a kindly citizen. "Man," replied the Scot, who was evidently a newcomer, "I'm looking for the Detroit Free Press."

"That guy speaks fourteen languages."

"Ah, a polyglot."

"Ah, a polyglutton."

Mirrors on Street Cars Help German Women Alight Safely

According to press dispatches, a street car company in Germany has found a way to induce its woman patrons to alight in a safe manner.

A mirror is placed in the forward side of the car exit. Thus, when a girl or matron prepares to get off, she discovers it and, invariably, pauses for a moment to view herself in it. And this brings her into the proper position to step off the car—holding on with her left hand, and facing the front!—Ex.

Talkative Barber: "Sir, your hair is getting gray."

Irate Customer: "Quite possible; please hurry a little faster."—Wash. Cougar's Paw.

"You look to me like a hard drinker."

"Not at all—it's easy for me."—C. C. N. Y. Mercury.

No one has ever complained of a parachute not opening.—Rutgers Chanticleer.

Dibbs: "Have you seen one of those instruments which can tell when a man is lying?"

Higgs: "See one! I married one!"—C. C. N. Y. Mercury.

Patron (Musing): "I had a steak yesterday—"

Waiter: "Yes, sah, will you have the same today?"

Patron: "Why-er—yes, if it is not in use."—Penn. State Froth.

Man (rushing into editor's office): "See here, you've published an announcement of my death by mistake. You must fix it up somehow."

Editor: "Well, we never contradict anything we have published, but I'll tell you what I'll do. I'll put you in the births column tomorrow and give you a fresh start."—Columbia Jester.

Prisoner: "Everything I do, I do fast."

Judge: "Better do sixty days; see how fast you can do that."—Notre Dame Juggler.

"What's a roof garden?"

"That's where they raise the roof."—Stevens Stone Mill.

She's so dumb she thinks a hangover is a Jewish holiday!—Wesleyan Wasp.

Newlywed: "This meat has such a queer taste."

Better Half: "That's queer. It should be good. I burned it a little but put vaseline on it right away."

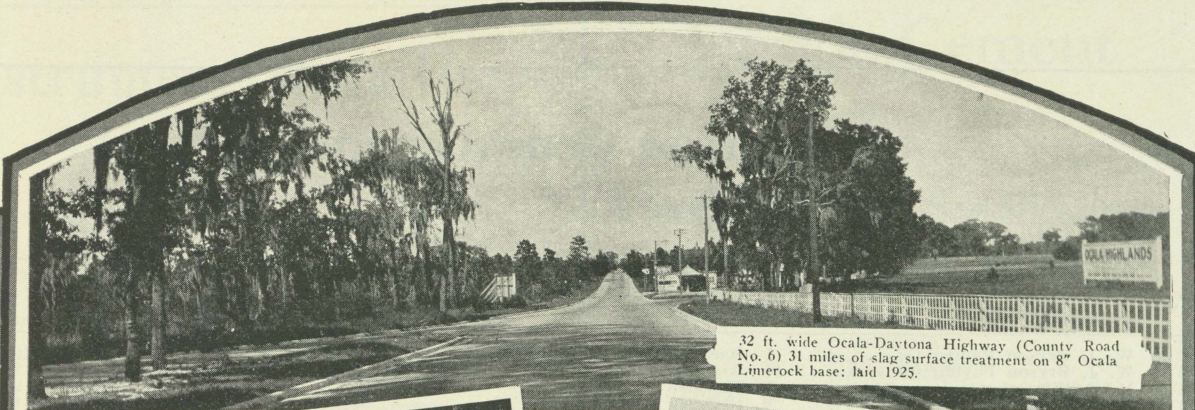
CARELESSNESS IN TRAFFIC ACCIDENTS

(Continued from page 20.)

children playing in or crossing the streets, and adult jay-walking—took 12,291 lives, or nearly 52 percent of the total 23,496 fatalities for which causes were listed. No amount of enforceable traffic law will reach these causes.

What, then, is the solution? It is impossible to eliminate highway accidents. With 23,000,000 vehicles using the streets and highways of a country peopled with 110,000,000 human beings, there will always be fatalities, both avoidable and unavoidable. It is not unreasonable to believe, however, that the present toll is much too high, and that by concentrated effort on the part of organizations interested in the problem, it may be considerably reduced.

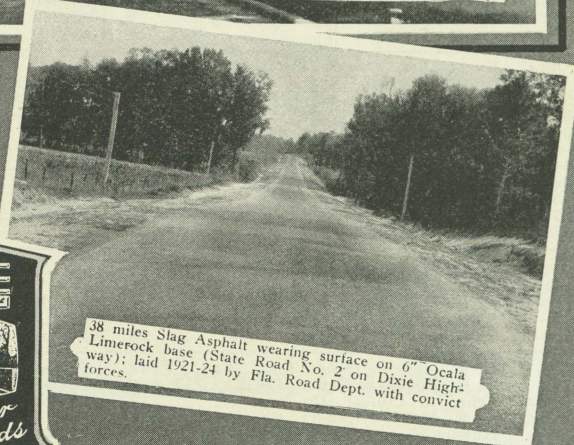
The most important immediate step that may be taken in behalf of highway safety is education of the public, both pedestrians and motorists, through the newspapers, the schools, the churches, and through every conceivable medium for passing on a vital message. Only when the individual practices the principles of simple courtesy and caution as a part of his natural self may the nation hope for a reduction in the toll it pays for automotive transportation. —New Mexico Highway Journal.



32 ft. wide Ocala-Daytona Highway (County Road No. 6) 31 miles of slag surface treatment on 8" Ocala Limerock base: laid 1925.



Short Route Jacksonville-Tampa Highway (County Road No. 5) 18 miles slag surface treatment on 6" Ocala Limerock base: laid 1925.



38 miles Slag Asphalt wearing surface on 6" Ocala Limerock base (State Road No. 2 on Dixie Highway); laid 1921-24 by Fla. Road Dept. with convict forces.

Marion County lays 181 miles of Slag Surface Treated roads for \$15,064 per mile

Here again are the two remarkable facts about road building in Florida—the astonishing number of miles of "Non Skid" Slag Surface Treated roads—and the low cost.

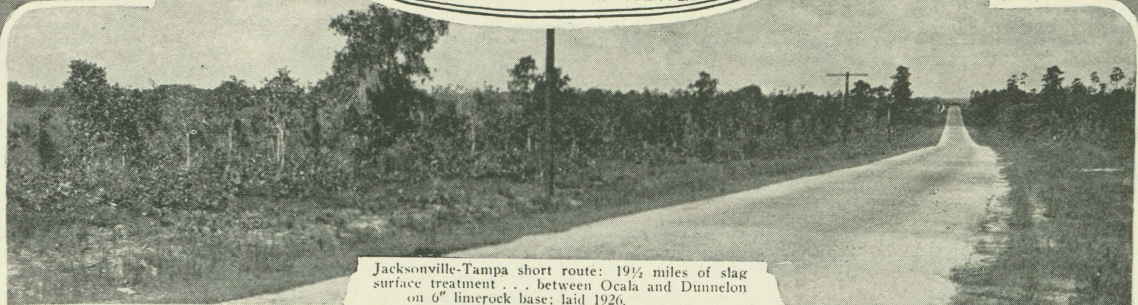
Marion County, for instance, to Sept. 1st, 1928, has completed 181 miles of slag surface treated highways—99 miles at a cost of \$12,000 per mile and 82 miles (long hauls from railroad and heavy grading—much of it through low, swampy land) at a cost of \$18,763 per mile—figures furnished by John E. Walker, County Engineer and Superintendent of Construction.

The entire program, under the bond issue, will total 378 miles—all of which will be the same type—6-in. and 8-in. compacted Ocala Limerock base, surfaced with 36 lbs. of No. 4 ($\frac{3}{4}$ -in. to $\frac{1}{4}$ -in.) "Ensley Basic Slag" per square yard.

More than 2,224 miles of "Non Skid" Slag surface treated roads and streets are serving high speed traffic in Florida. Experience has proved it to be entirely satisfactory and unusually economical.

BIRMINGHAM SLAG CO.

Slag Headquarters for the South
ATLANTA BIRMINGHAM JACKSONVILLE
THOMASVILLE MONTGOMERY Ocala FLA



Jacksonville-Tampa short route: 19½ miles of slag surface treatment . . . between Ocala and Dunnellon on 6" limerock base: laid 1926.

Status of Construction

Through August, 31st, 1928

Proj. No.	Contractor	Road No.	County	Total Length Miles	Clearing Miles	Grading Miles	Base Miles	Surface Miles	Per Cent Complete
52	W. J. Bryson Paving Co.	1	Escambia	10.09	10.09	10.09		Graded	100.00
55	W. J. Bryson Paving Co.	14	Alachua	16.77	16.77	15.93		Graded	96.00
61-A	M. C. Winterburn, Inc.	1	Gadsden	10.00				10.00 Concrete	99.00
61-C	Morgan-Hill Paving Co.	1	Gadsden	9.77				9.77 Concrete	95.00
62-A	A. D. Weeks	24	Osceola	12.52	11.27	11.27		Graded	80.00
62-C	Everglades Const. Co.	24	Osceola	11.83	11.83	6.03		Graded	65.00
62-D	A. D. Weeks	24	Osceola	12.62	12.62	8.20		Graded	85.00
500-B	State Convict Forces	20	Bay	12.76	6.00	6.00		Graded	35.00
535	L. B. McLeod Const. Co.	5-A	LaFayette	13.20	13.20	13.20		Graded	99.00
624	L. B. McLeod Const. Co.	50	Hamilton	6.23	6.23	6.23		Graded	98.32
640-B	West Construction Co.	4	Martin	11.82			11.82	11.82 S. Asph.	100.00
644-A	State Convict Forces	10	Wakulla	8.50			8.50	3.00 S.T.R.B.	75.00
651	State Convict Forces	10	Gulf	14.72			14.72	14.72 S.T.R.B.	100.00
669-C	R. C. Huffman Const. Co.	27	Dade	12.00	12.00	12.00	12.00	0.00 S.T.R.B.	98.00
669-D	R. C. Huffman Const. Co.	27	Dade	12.31	12.31	12.31	12.31	0.00 S.T.R.B.	98.00
677-D	Duval Engr. & Contr. Co.	13	Levy	8.91			8.91	5.08 S.T.R.B.	88.00
678	State Convict Forces	10	Bay	8.73	8.50	7.25		Graded	79.00
683-A	Robert G. Lassiter & Co.	4	Palm Beach	9.04	7.63	7.63		7.63 Concrete	90.00
688	State Convict Forces	10	Bay	9.32	3.72	2.00		Graded	12.00
706-B	Curry & Turner	28	Putnam	14.91	14.91	14.00		Graded	98.00
707	L. B. McLeod Const. Co.	43	Jefferson	5.31	2.25	.75		Graded	10.00
709	C. G. Kershaw Contr. Co.	39	Holmes	9.09	9.09	8.45		Graded	92.00
710-A	Franklin Constr. Co.	17	Hillsboro	6.18	6.18	6.18		Graded	100.00
710-C	E. F. Powers Constr. Co.	17	Hillsboro	12.69	12.69	12.69		Graded	100.00
720	Hardee-Fisher Co. Inc.	11	Jefferson	9.64	9.64	9.25		Graded	90.00
722	R. J. Carroll	48	Jefferson	8.83	8.83	5.06		Graded	69.00
723	L. B. McLeod Const. Co.	66	Leon	11.76	11.76	11.76		Graded	100.00
724	Leon County	66	Leon	11.10	10.32	8.99		Graded	62.00
726	State Convict Forces	19	Dixie	12.57	6.00	5.50		Graded	35.00
728	State Convict Forces	10	Leon	11.65	11.18	11.18		Graded	96.70
732	Gilbert & Haddock	17	Polk	8.94	8.94	8.94		Graded	99.00
736	C. G. Kershaw Contr. Co.	39	Holmes	8.58	8.58	6.18		Graded	71.00
740	State Convict Forces	10	Gulf	9.36			4.33	0.00 S.T.R.B.	36.00
743	State Convict Forces	10	Bay	18.25	18.25	18.25		Graded	98.00
744	State Convict Forces	19	Madison	5.79	5.67	5.38		Graded	90.00
745	Convicts & Taylor Co.	19	Taylor	15.95	14.83	13.56		Graded	81.00
748	State Convict Forces	35	Madison	6.22	6.16	6.16		Graded	98.30
749	State Convict Forces	14	Gilchrist	7.81	7.42	3.12		Graded	46.00
750	State Convict Forces	14	Gilchrist	12.97	7.26	2.46		Graded	28.00
755	B. Booth	17	Polk	11.22	11.22	11.22		Graded	98.00
757	Little & Lee	2	Polk	10.26	10.26	9.74		Graded	96.00
758	Little & Lee	2	Polk	8.34	8.34	8.02		Graded	98.00
763	A. E. Campbell	50	Suwannee	12.34	12.34	12.34		Graded	100.00
780	C. F. Walker	29	Okeechobee	11.00	10.89	9.13		Graded	88.00
781	C. F. Walker	29	Okeechobee	11.00	11.00	9.46		Graded	73.00
782	C. F. Walker	29	Okeechobee	6.62	6.49	6.49		Graded	82.00
798	State Convict Forces	13	Nassau	15.03	6.50	1.25		Graded	6.00
802-A	C. C. Hayes	10	Okaloosa	8.68	2.95	.18		Graded	3.40
803	Collins Const. Co.	10	Okaloosa	11.13	0.00	0.00		Graded	0.00
804	C. A. Steed & Sons, Inc.	67	Glades	18.56	18.56	15.01	3.71	0.00 S.T.R.B.	33.00
807-A	R. C. Huffman Const. Co.	25	Palm Beach	10.82	10.49	8.65	5.41	0.00 S.T.R.B.	58.00
807-C	R. C. Huffman Const. Co.	25	Palm Beach	6.14	2.45	1.40	.24	0.00 S.T.R.B.	12.00
815	Silas Gibson	54	Okaloosa	13.58	11.54	6.79		Graded	52.00
819	W. J. Bryson Pav. Co.	54	Okaloosa	4.44	4.39	3.77		Graded	88.00
823	W. J. Bryson Pav. Co.	41	Okaloosa	9.18	8.72	5.87		Graded	76.00
824	W. J. Bryson Pav. Co.	41	Okaloosa	9.82	9.33	5.01		Graded	61.60
827	S. G. Collins		Escambia	8.12	8.10	6.08		Graded	70.00
Total complete August 31st, 1928					2747.79	2679.91	1241.93	1946.72	
Complete month of August					13.33	38.33	12.57	5.83	
Total complete July 31st, 1928					2734.46	2641.58	1229.36	1940.89	

TOTAL MILEAGE COMPLETE

	Concrete	Brick	B. C.	S. A.	B. M.	Asph. Block	S.T.R.B.	S.T.S.C.	S. C.	Marl	Total
Complete to July 31, 1928	268.99	17.13	36.46	111.74	109.44	23.20	945.28	174.09	257.04	27.58	1970.95
Complete month of August	1.40			1.20			7.92				10.52
Complete to August 31, 1928	270.39	17.13	36.46	112.94	109.44	23.20	953.20	174.09	257.04	27.58	1981.47

Instrument Repairing *by Experts*

Q Surveying Instruments and other Technical Goods used by Engineers and Contractors, repaired and overhauled in the most completely equipped shop in the South.

Q Modern machinery, expert workmen and latest methods insure satisfactory results, reasonable prices and unusually quick delivery of all work entrusted to us.

*Technical Goods for the
Engineer and Contractor*

THE H. & W. B.
Drew Co.
EST. 1855 - QUALITY EVER SINCE

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Jacksonville

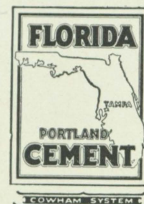
Florida Cement

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Florida Portland Cement Co.

Tampa, Florida

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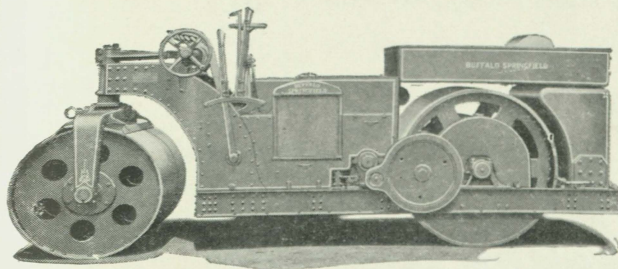
When buyers investigate before they decide they learn that

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Springfield, Ohio.



T-B

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Our Woodward Plant (destroyed by fire July 6th, 1926) has been rebuilt with the most modern Crushing and Screening equipment. This new plant is producing a material unexcelled in correct and uniform sizing.

Our daily capacity from two plants is 3,000 tons, and in addition thereto, we have storage facilities for taking care of rush or emergency orders.

Write or telegraph for delivered prices.

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BIRMINGHAM, ALABAMA

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...wet or dry...
ARE SKIDPROOF!



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*Tarmac Penetration Pavement
 Buena Vista, Va.*



Tarmac applied over cement-concrete makes a skidproof, waterproof surface that resists wear. New York State Road No. 968 Between Morristown and Ogdensburg, N. Y.

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Florida Representative: M. D. MOODY, 402 Masonic Temple, Jacksonville, Fla.

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